The ILLINOIS Medical Journal

Official Journal of the Illinois State Medical Society

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ACCIDENT PREVENTION

We are reminded daily of the death toll and disability resulting from accidents. The 100,000 annual deaths gives it third place on our mortality tables and were a cancer cure to be found tomorrow, accidents would move overnight into second place. This is an ironical situation considering the advancements we have made in the prevention and treatment of disease during the last decade.

The injured have received, from a statistical standpoint, too little attention and by neglecting this aspect, the problem has been minimized. By using fatalities as the measuring stick the loss of time and efficiency produced by temporary and permanent physical disability is overlooked. This is evident when it is considered that accidents cause the death of 100,000 but at the same time over ten million individuals were injured.

The treatment of injuries is a major part of every physician's practice. Many advancements have been made to lower the death rate and minimize disability and deformity. Prevention, however, is another matter and until recently physicians were prone to accept this phase as being out of their realm. They readily admit that if a man dies in an automobile mishap he is just as dead as his neighbor who succumbs to pneumonia. The youngster who developed paralysis after falling from a ladder fares no better than his playmate with a similar handicap resulting from polio. In other words the outcome is often the same whether we sustain an accident or fall prey to disease. The difference lies in the etiology but there is no reason why the field should be neglected by the medical profession because bacteria degeneration or hormones are not involved.

Preventing disease is not new to the physician and there is reason to believe that some of the same procedures can be followed in the prevention of accidents. It means a thorough epidemiological study of these mishaps. Preventive measures have been in progress for several years to curtail traffic and industrial accidents. The effects are noticeable in spite of statistics to the contrary. This pertains particularly to automobile accidents as the mortality rate has been rather constant for several years even though there has been a marked increase in traffic and passenger miles. The worker also has benefitted and studies now show that the number of fatalities among our employed is almost twice as great off the job as on.

But the prevention of home accidents has lagged behind and it is here that epidemiologic studies are needed the most. Thirty-five per cent of all deaths from tragedies of this nature occur in or about the house — a figure which would give it ninth place among all causes of death. Furthermore, of the 10,520,000 who were injured

in 1947, 5,200,000 were injured at home. It has been estimated also that 140,000 of the latter were left with a permanent defect. The majority of these mishaps resulted from falls, burns, suffocation, poisonous gas, poison and fire arms.

The home is in the domain of the physician and it is here that the "when, where, how and who" data can be collected to formulate preventive measures. We dropped the notion years ago that disease and infection were due to an evil, some misfortune, bad luck or a mistake of nature and the same view point must be taken in respect to accidents. Less pity and more etiology will go a long way in teaching safety. This aspect of life deserves as much attention as vaccination, quarantine, cleanliness, antisepsis, diet and sleep. Who are better qualified than the family physician and community hospital to start a project of this nature?

CONFERENCE FOR INTERNS AND RESIDENTS

Harlan English, as chairman of the Committee on Rural Medical Care, arranged a conference for interns and residents in Chicago and nearby hospitals on Tuesday evening, April 26, at the LaSalle Hotel, Chicago. It was the intention in arranging the program to have short talks on subjects which are of importance to physicians who are starting their practice, and which are not given in the regular courses at the medical schools.

Invitations were sent to approximately 75 interns and residents, and a complimentary dinner was likewise provided for the occasion. The program was as follows:

1. "Essential Equipment Needed to Start a Practice and Its Cost"
2. "How to Select Office Help and Consultants"
3. "How to Handle Patients, Collections, Home and Office Visits"
4. "How to Finance an Office, Car and Equipment"
5. "What a Physician Fresh Out of School Has Done in a Small Town"
6. "Locations Now Available in Illinois"

Following these short presentations, it was arranged to have a round table discussion, and the group was permitted to ask questions which they had in mind at the time. Three of the speakers on this program were physicians who have been unusually successful in small town practice, and they had interesting stories to tell of their work.

The speaker on how to finance an office, car and equipment, was an official of a small town bank, who is interested in the welfare of newcomers in his and other similar towns, and he had a story to tell which was of much interest to the group at this conference.

This was the first conference of its type that has been arranged by any committee or group within the Illinois State Medical Society. The results will be most interesting, and if it seems desirable, this may be made an annual feature for the Committee of which Doctor English is chairman.

ARMED FORCES PROFESSIONAL MANPOWER SHORTAGE

We have received many letters in recent weeks from the Office of the Secretary of Defense, emphasizing the urgency of the need for physicians and dentists, which will increase after July 1. At this time, it is said, the Armed Forces will lose one third of their present staff of physicians and dentists, as their tours of duty will expire and normal procurement measures cannot fill the vast number of vacancies that will arise.

By the end of July, they will need about 1600 physicians and 1160 dentists. By next December this shortage will grow to 2200 physicians and 1400 dentists, according to recent statements of the Secretary of Defense.

According to this official, a direct appeal is being made to the 8000 young physicians and dentists who were trained at Government expense under the wartime Army Specialized Training Program and the Navy V-12 program, and who have given little or no service to the Armed Forces, to volunteer for active duty in one of the three Armed Services.

An appeal is also being directed to the 7,000 physicians and dentists who were deferred during the war to complete their medical or dental educations at their own expense, and who have not

served in the Armed Forces, to volunteer for active duty.

This program is a joint undertaking of the three Services, the American Medical Association, the American Dental Association, and other allied professional groups to fill the critical professional manpower shortage which faces the Armed Forces. Local professional groups are being furnished the names of the physicians and dentists in their particular communities who received professional training at government expense, and are asked to contact these men for personal interviews to inform them regarding the critical needs of the Armed Forces. They are asked to make regular reports to the Secretary of Defense on the result of the interviews.

Secretary of Defense James Forrestal said by the end of July of this year, the Armed Forces will have lost almost one-third of the present number of physicians and dentists now in service. This will result in a shortage of about 1600 physicians and 1160 dentists. If this condition is allowed to develop the number will have increased to 2200 physicians and 1400 dentists by December.

Normal procurement procedure for professional replacements can not hope to supply the requirements for the Armed Forces. For example, during the month of January, 1949, only 30 physicians and 20 dentists were commissioned in the Armed Forces.

Should a shortage of professional manpower be allowed to materialize it could easily jeopardize the whole National Defense Program. It would mean the Armed Forces would not have enough physicians and dentists to furnish even a minimum of medical and dental service to the nearly 2,000,000 men and women in the military Services.

It is estimated that the government expended almost $10,000,000 to educate, feed and clothe the 8,000 men who participated in the wartime programs.

If the present campaign for volunteers is unsuccessful consideration must be given to the following alternatives:

1) To ask for draft legislation covering physicians and dentists who have not responded to the call for volunteers.
2) To ask those men who served in World War II, and who hold reserve commissions, to re-ented for active duty in the Armed Forces.
3) To retain those men now on duty, but who are entitled to be relieved from the service upon completion of their respective tours of duty, until the shortage has been corrected.

Mr. Forrestal pointed out that this professional manpower shortage in the Armed Forces is so serious that legislation for a physician and dentist draft has already been prepared and is being held for possible use.

Mr. Forrestal announced also that Mr. Charles P. Cooper, his deputy for medical and allied professional matters, will conduct, through the Armed Forces Medical Advisory Committee, an active campaign for medical and dental personnel. The committee will also make an intensive study of the proper utilization of physicians and dentists, and of the workload in the Armed Forces, to insure against waste of precious professional manpower, and in so far as possible, that men serve in an assignment commensurate with their professional skills and abilities.

A further statement made by Mr. Forrestal reveals that he has sent personal letters to the 8000 physicians and dentists who were trained at government expense under the A. S. T. P. or the Navy V-12 programs.

In addition to professional organizations, Secretary Forrestal is asking for the cooperation of veteran, civic and patriotic groups to insure success for the campaign by translating the needs of the Armed Forces to the public, and to assist in making direct contact with individual physicians and dentists whom they know are affected by this appeal. Deans of medical and dental schools and heads of hospitals also are being asked to give their support to the program.

Mr. Forrestal said, "We have an obligation to the millions of persons concerned. These include the men and women in the Armed Forces themselves, and the fathers and mothers of these men and women who depend upon the pledge of this Government to take care of the medical and dental needs of those who serve their nation throughout the world."

STATE DEPARTMENT OF PUBLIC HEALTH

Public Health Practices For Veterinarians

Roland R. Cross, M.D.,
Director of Public Health, State of Illinois

This is an occasion which is very important to me. It is important to me personally as well as officially. When I welcome you, today, to this Institute on Public Health Practices for Veterinarians, my welcome is not only a very cordial and personal one but it is also an *official* recognition of the fact that public health in Illinois has extended its boundaries to encompass the diseases of animals as well as the diseases of man. And so today I feel towards you individually somewhat like the father who is welcoming a very eligible son-in-law into the bosom of his family.

Human and animal diseases are linked together as in a marriage, and when we examine the classical criteria for determining which diseases are the concern of public health and which are not, we will find that many diseases shared by animals and man fall into the public health category. Public health is charged with responsibility as regards:

Those diseases which are communicable.

Those diseases which are preventable.

Those diseases which affect large numbers of people.

Those diseases which are so costly to control that financial assistance from government or other sources is necessary.

Those diseases which require concerted community effort to control.

Measured by these standards you will see that many of the diseases transmitted from animals to man can be classified as public health problems, and that their solution is a joint responsibility of the *veterinary* and the *public health* professions.

Heretofore the veterinary profession has been largely an adjunct only to agriculture. It has been motivated mainly by immediate economic gains and losses for the farmer. Today, I hope, marks the turning point in Illinois when the veterinary profession will become a partner to public health as *well* as to agriculture, and when the conservation of *human health* will be as

Address made at "Institute on Public Health Practices For Veterinarians"; Centennial Hall, Springfield, March 21, 1949.

much a part of your job as is the conservation of the *farmers' investment* in livestock. Without your partnership, public health can do little to control in humans such diseases as brucellosis, rabies, mastitis and others.

We in the Illinois Department of Public Health have invited you to this Institute for the purpose of giving you a background of public health philosophy and practice, which we hope will clarify your relationship to public health, and which will give you the viewpoint of your new partners.

In asking you to work with *us,* we do not minimize the importance of the livestock industry and your relationship to it. We recognize that without a prosperous livestock industry, our entire economic structure would collapse. Without the products of healthy cattle, sheep, swine and poultry, our population could not be properly fed and clothed. In these days of a world-wide shortage of animal food products along with a steady increase in human population, the importance of the livestock industry is greater than ever before.

We have in the past looked to you as a profession indispensable to the maintenance of our food supply, our clothing, and our economy. We are *now* looking to you as a vital profession in the maintenance of our health. Many human diseases can be controlled *only* at the animal source of the disease. We must have your full cooperation in attacking these diseases at the animal source. Veterinary and public health programs of disease prevention *must be coordinated.* We hope that this Institute will be the beginning of an understanding of our mutual problems, and that it will result in strong, aggressive, forceful teamwork in their solution.

While the *prevention* of disease was, historically, the prime purpose of public health, the maintenance of optimum health and well-being is *now* a concern of *equal* importance. We are therefore not only interested in the diseases which animals may contract and transmit directly or indirectly to man, but we are also concerned over the *quality* of the nutriment in animal foodstuffs; because good nutrition is essential to optimum health. We know that *every* cabbage is not always an *adequate* cabbage from the nutritional angle. Poor soil may make a given cabbage much inferior to the *standard* cabbage. Nutritional deficiency is not always due to the *lack* of food; it can be due to the *quality* of the food. This has proven to be the case in regard to vegetation. I understand that research is underway to determine the extent to which nutritionally substandard feed produces substandard meat which may in turn contribute to substandard human health.

If you, as veterinarians, are ready to accept the role of key men in the control of certain human diseases and in the maintenance of good human health through nutrition, you may well ask, "What is it that you public health people wish us to do?"

Well, we cannot *fight* an enemy until we *locate* the enemy. We cannot pit *our* strength against an enemy until we know *his strength.* If animal diseases are the enemies of human health then our first task is to *locate,* literally and geographically, those diseases. Our first task is also to estimate the extent of those diseases and their relative potency.

We need to follow the same procedure in regard to animal diseases which are transmissible to man, as we have followed in such diseases as smallpox, diphtheria and typhoid fever which are now well under control. It is essential that we be informed about every case of smallpox, diphtheria or typhoid fever; where it is located; how it originated; to whom it is likely to spread. Only through such knowledge can we take the necessary measures to *prevent* its spread. This procedure, namely, *the reporting of disease,* is one of the "ABC's" of public health. This procedure must be the "ABC" in the control of animal-to-man diseases.

Cooperative and coordinated investigations by veterinarians and health officers of animal disease sources, animal disease reservoirs, avenues of disease transmission, must take place. The skill of the veterinarian in detecting animal disease, his promptness in applying therapy, his assistance to the husbandman in animal management and sanitation are as essential to public health as they are to the prosperity of the livestock industry. These things are indeed *vital* to public health. They must be made a part of the public health program, and we in public health look to the veterinary profession to bring this about.

We are aware that neither our profession nor the veterinary profession can accomplish anything without proper understanding, sympathy and cooperation on the part of the public. The public must *know* the dangers of animal disease; the public must know *why* disease control measures are instituted and what they propose to accomplish. This knowledge must be acquired by the citizenry through what is known as "public health education." The veterinarian must therefore assume the additional task of being an educator. He must preach and teach the gospel of human health as well as the gospel of prosperity through health livestock. It is the purpose of this conference to give you some background and perhaps some pointers to use in your new role of health educators.

The papers listed on this program will, I am sure, be rich with information and facts. We hope that you will take home with you a great deal of public health knowledge. But, if there were a *choice*, we would *prefer* that you leave this Institute, not with a lot of new facts in your heads, but with a new *feeling* in your hearts towards your responsibilities to man and beast. We hope that this feeling will impel you to go home and get acquainted with your local public health officer and his staff. We hope that it will impel you to start immediately our first joint project — that of reporting animal diseases to the State Department of Public Health. Other projects will follow — this is a necessary first step — a step on the road which we shall tread together.

ADVISE CAUTION IN USE OF DICUMAROL

Dicumarol, a drug which prevents clotting of the blood, should be used with extreme caution, warn three Chicago doctors and two Ann Arbor, Michigan, doctors in the March 19 issue of The Journal of the American Medical Association.

In no case should the drug be used unless reliable laboratory facilities for testing prothrombin, a factor involved in clotting, are present, say Ivan F. Duff, M. D., and William H. Shull, M. D., from the Department of Internal Medicine, University of Michigan and the University of Michigan Hospital.

The drug should be used with caution in patients with severe high blood pressure, they emphasize. The Ann Arbor doctors report a case of death, apparently from dicumarol, which occurred at the University of Michigan Hospital.

They report seven deaths attributed to dicumoral among patients with subacute bacterial endocarditis—inflammation of the membrane which lines the heart—and 16 deaths attributed to dicumarol among patients with other conditions. These 23 deaths occurred at various places other than the University of Michigan Hospital.

Animal experiments show that dicumarol treatment is not advisable for pregnant women, advise Alfred P. Kraus, M. D., Samuel Perlow, M. D., and Karl Singer, M. D., from the Department of Hematologic Research, Medical Research Institute, and the Department of Surgery, Michael Reese Hospital, Chicago.

MEDICAL ECONOMICS

The Medical Economics Committee. Chauncey C. Maher, Chmn., Hubert L. Allen, Emmet B. Bay, Edwin F. Baker, Carroll Birch, Thomas C. Browning, Roland R. Cross, James Graham, George Halperin, Edwin S. Hamilton, Ford K. Hick, Edwin F. Hirsch, May McDonald Milligan, Marie Wessels, Walter M. Whitaker, Holland Williamson.

Convalescent Hospitals

More people are interested today than even before in providing adequate hospitalization for themselves and their families. As a result of the introduction of the Blue Cross, and similar plans, throughout the nation the general hospitals are now rendering a tremendous volume of service. According to a recent report of the Council on Medical Education and Hospitals of the American Medical Association the total number of hospital beds in the United States has decreased, while the total admissions has increased. This is accounted for, in many instances, by shorter hospital stay, due to early ambulation and modern chemotherapy. With the increased number of admissions to general hospitals, and undoubtedly more and more hospitalization plans coming into being, the problem of convalescent care must be considered more seriously than ever before. The public and the doctor have taken desultory interest in the process of convalescence. Convalescence may be defined as the period of recovery from acute illness, or accident, after the acute phase has subsided, until complete recovery, or rehabilitation, has been attained.

In some of the general hospitals the old age pensioner, the blind, and other recipients of public aid, are admitted only if they are acute "emergencies." The county nursing home, a converted "poor farm" in most communities, is the only institution where these aged or chronically ill may be admitted, or where convalescent care can be obtained. The facilities are not ideal and as a rule these institutions are over crowded.

A convalescent hospital, or a convalescent section of the general hospital, appears high on the list of answers to this growing problem of patients in our general hospitals. Whether this should be an additional wing to the present hospital, or a separate institution, is debatable. For the "short term" convalescent patient the additional wing to the general hospital would appear to be the most feasible, while the "long term" convalescent possibly could be cared for in a separate institution where patients need only supervisory care. Such a plan would allow a smaller staff of trained personnel to care for a large number. The day has passed where three graduate nurses perform personal services for one patient, whether rich or poor. There just are not that many nurses today. Certainly there are not enough well trained, expert nurses to

render highly specialized care to one particular case.

From many reports the small privately owned and operated nursing home is not the answer to the mounting needs. Many are poorly supervised, and poorly staffed. A few conscientious operators of nursing homes are rendering invaluable service, especially in the care of the chronically ill patient. These homes are few.

Whether these convalescent homes are provided for by public or private funds, or both, depends upon the conditions in a given community. If a separate institution is desired, it is best located away from the congested areas where ample space can be provided for outdoor recreation and pleasant environment. With the rising tide of chronic illness the convalescent hospital should be seriously considered in any community health program. Facilities for children should be a well rounded part of any program of convalscents, especially the rheumatic fever patient or orthopedic cases.

The convalescent hospital program instituted in World War I and II has crystalized much of our thinking along these lines. The tremendous value of hastening recovery following illness, or injury, of our soldiers has been clearly demonstrated.

In the metropolitan areas such plans as the Montefiore Home Care is a trail blazer for the chronic long term illness. In smaller communities without medical schools the plan may be workable, but the lack of medical residents, or house physicians, interferes with the actual operation. The great majority of convalescents should, and will no doubt always be taken care of in the home, however, the home is not always compatible with a long term convalescent, especially if the patient is elderly. A generally accepted standard is approximately twelve per cent of the general hospital beds for convalescents, and twenty-five per cent of these should be for children.

The local medical society should take the lead in any community to see that the long range health program plan should include some provision for a convalescent hospital, thereby reducing the load of our over-crowded, and under-staffed, general hospitals. It has been found that the construction costs of convalescent units are about half that of general hospitals. Therefore, if more general hospital beds are freed by transfer of the convalescents, a definite saving is realized to the general hospital.

Industrial communities should be more than interested in furthering such a program for convalescents, with the earlier return to work of their employees. The armed forces demonstrated its value in expediting recovery for combat soldiers. The same could be done in the civilian hospitals with large numbers of industrial cases.

Close team work between the city administration, the county medical society, the welfare agencies, the social service group, as well as the women's auxiliaries to the general hospital, would be of great help in the establishment of a convalescent hospital in almost any community, worthy of the dignity and respect that such an institution should bear.—H. W.

CORRESPONDENCE

"Your Mental Hospitals" INCREASE OF HOSPITAL POPULATION

In 1917 there were slightly over 16,000 patients in mental institutions of this state. The population has gradually increased until at present there are 34,500 patients in the nine mental institutions.

This increase in patient population has been gradually on the upgrade except for slight remissions during the war years of 1917-1919 and 1942-1943. A recent statistical report issued by the Division of Mental Hygiene of the U. S. Public Health Service, Federal Security Agency indicated that there was a nation-wide progressive increase in state hospital population. The factors given by this agency for the increase in patient population are as follows:

1. The more adequate provision of facilities for the care and treatment of the mentally ill.
2. A considerable and fairly continuous increase in knowledge concerning the nature of mental illness on the part of the medical profession and of psychiatrists in particular; this has resulted in an increased number of cases formerly not recognized as mentally ill being diagnosed and committed to hospitals.
3. A growing realization on the part of laymen that mental illness is a problem in which the individual patient requires psychiatrically oriented treatment and also an increasing knowledge that the individual patient is susceptible of improvement and recovery if treatment is taken in time.
4. An increasing public confidence in the management of a large number of hospitals for the mentally ill with increased use of these hospitals on a voluntary basis by persons who formerly avoided treatment or remained in seclusion elsewhere.

Chart 1 shows the growth of mental hospital population for the nation for the period 1903 to

CHART 1

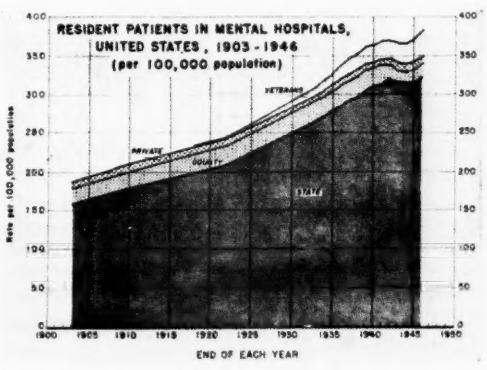
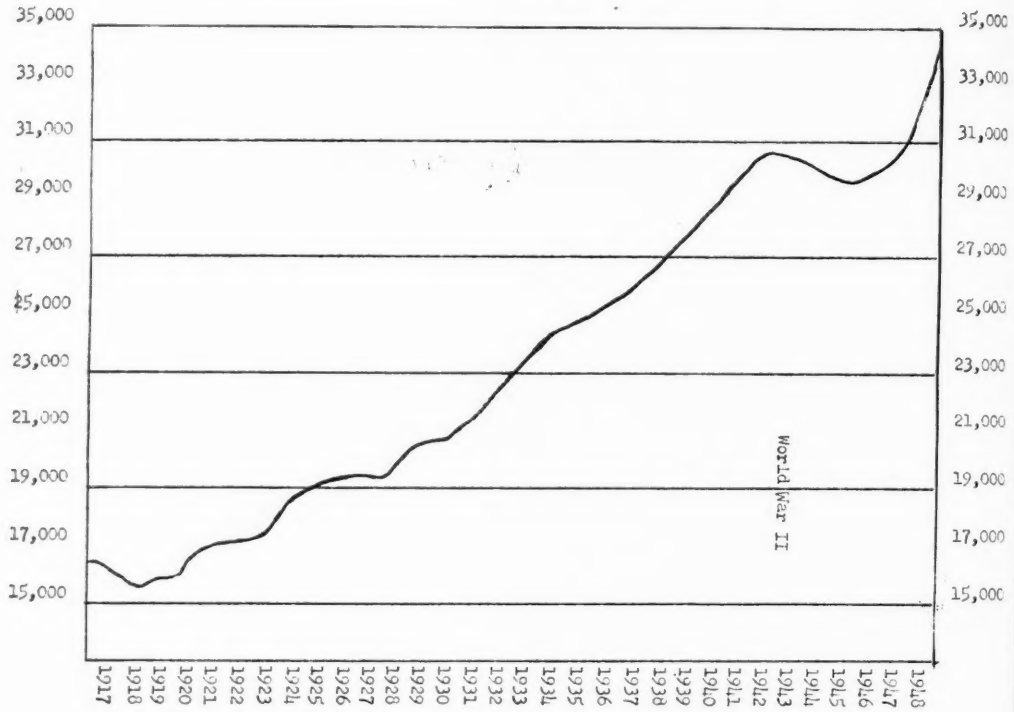


CHART 2
Patients in Illinois State Mental Hospitals
1917-1918



1946. This includes the patients in public, private, and veterans' institutions.

It is very interesting to compare the patient population in the Illinois state institutions. During the last thirty years there has been a progressive increase in population, except for the period during World War I and World War II. According to available statistics, this population will continue to increase, because of the above mentioned factors and the increased longevity of persons, which would add to the number of mentally ill persons with senile dementia and arteriosclerotic psychoses. See Chart 2.

Estimation of the therapeutic effect of any drug on such a disease as human tuberculosis is extremely difficult. This is especially true in view of the chronicity of most forms of the disease and the known favorable response of the disease to proper diet, collapse therapy and rest in the absence of any treatment with drugs. Archie H. Baggenstoss, M.D., William H. Feldman, D.V.M., and H. Corwin Hinshaw, M.D., Am. Rev. Tuberc., Jan., 1947.

CLINICS FOR CRIPPLED CHILDREN LISTED FOR JUNE

The University of Illinois Division of Services for Crippled Children has scheduled 18 clinics to be held in the month of June. Dr. Herbert R. Kobes, director of the Division, stated that 12 of these are to be general clinics where diagnostic, orthopedic, pediatric, speech and hearing examinations will be made; 4 are to be for children with rheumatic fever and 2 for cerebral palsied children.

The June schedule is as follows:

June 1—Chicago Heights, St. James Hospital
June 2—Hinsdale, Hinsdale Sanitarium
June 7—E. St. Louis, St. Mary's Hospital
June 8—Glenview, Village Hall
June 8—Rock Island (Cerebral Palsy), St. Anthony's Hospital
June 9—Elmhurst (Rheumatic Fever), Elmhurst Community Hospital
June 10—Chicago Heights (Rheumatic Fever), St. James Hospital

June 14—Peoria, St. Francis Hospital
June 14—Watseka, County Court House
June 15—Elgin, Sherman Hospital
June 16—Rockford, St. Anthony's Hospital
June 17—Litchfield, St. Francis Hospital
June 21—Fairfield, Masonic Temple
June 22—Springfield (Cerebral Palsy), St. John's Hospital
June 24—Chicago Heights (Rheumatic Fever), St. James' Hospital
June 28—Peoria, St. Francis Hospital
June 28—Effingham (Rheumatic Fever), St. Anthony's Hospital
June 30—Normal, Brokaw Hospital

Over 7100 visits were made to the 145 general clinics held during 1948 and more than 10,000 individual examinations made.

During 1948, 2,225 children were placed on register of the Division.

Approximately 650 children received private physician's service through the Division and 2,100 visits were made outside of clinics, hospitals, and convalescent homes, during 1948.

These diagnostic clinics are conducted by the Division in cooperation with local medical and health organizations. The physicians who serve on the various clinics staffs are private physicians who are certified Board members. The follow up work on the children is based largely upon their recommendations for treatment and care. Private physicians may refer or bring children to a convenient clinic for examination or consultative service.

ALL PHYSICIANS INVITED TO PRESIDENTS' CONFERENCE

Discussion of compulsory health plans, for medical care and for disability compensation, will highlight the fifth Annual meeting of the conference of presidents and other officers of state medical associations to be held at Atlantic City on Sunday afternoon, June 5. The meeting will be held in the Rose Room of the Traymore Hotel, the day preceding the opening of the AMA general sessions, and it will be open to all physicians.

Cecil Palmer, English publisher, author, and journalist, will tell of the impact of socialized medicine on the British doctor and his patients. Palmer, now completing a tour of America, has been a brilliant spokesman for the British Society for Individual Freedom. An American viewpoint of the British health system will be given by W. Alan Richarson, editor of *Medical Economics*, now in England for a first hand study of all phases of the program.

With compulsory disability compensation programs operating in three states, and Washington and New York the latest to pass such laws, the Conference presents two speakers on this vital question. Edward H. O'Connor, managing director of the Insurance Economics Society of America, will discuss the legislation, and Dr. Bert S. Thomas medical director of the California program, will tell of the medical implications of cash sickness compensation acts.

The AMA relationship to the state societies will be reviewed by Dr. George F. Lull, secretary of the AMA, and the problems facing the state association at the crossroads will be the subject of a talk by Dr. Clarence Northcutt, president of the Oklahoma State Medical Association. Plans are also pending for the presentation of views on national health legislation by a member of Congress.

FIRST OF SIX CANCER FILMS NOW AVAILABLE

A new film, titled "Cancer: The Problem of Early Diagnosis", which has received the approval of the American Medical Association's Committee on Medical Motion Pictures, has been made available to the medical profession through more than 50 state and regional distributing points.

Through the efforts of its co-sponsors, the American Cancer Society and the National Cancer Institute of the United States Public Health Service, prints for single showings may be borrowed from State Cancer Society officers, State Health Departments, and four regional offices of Association Films located in New York City; Chicago, Illinois; Dallas, Texas; and San Francisco, California.

The film, designed for general practitioners, is based on the premise that if cancer were diagnosed early and effectively treated the death rate might be reduced by almost 50 per cent.

"Cancer: The Problem of Early Diagnosis" is the first in a series of six films to deal with the subject. The succeeding five, to be released

within the next two years, will deal with diagnosis of cancer by specific body site.

Prints of the film are also available for purchase through Audio Productions, Inc., 630 Ninth Avenue, New York 19, N. Y., the company which produced the film. Prints cost $150 each, and may be ordered from Audio Productions for preview pending purchase.

The film was reviewed in the January 29th issue of the AMA Journal. The comment was: "The photography, animation and narration are excellent."

RADIO HEALTH SERIES RECEIVES NATIONAL AWARDS

Although on the air only since October 18, 1948, the Chicago Industrial Health Association's first project, the radio health series called, "It's Your Life" has already received 3 national awards. Ben Park is the radio producer and the Director of the Radio Division of the Association. Johnson and Johnson, manufacturers of hospital and medical supplies, are the sponsor.

The first award was presented to Johnson and Johnson at the Waldorf-Astoria hotel in New York on March 4th and consisted of a bronze medal representing the Annual Advertising Award for 1948 for "Outstanding Contribution to Radio as a Social Force". On March 15, 1949, it was announced that on March 30th, the City College of New York, through its School of Business and Civic Administration, will award a plaque "For the Creation of the Outstanding Radio Program of 1948". The radio series will also receive the Award of Merit for "The Creation of the Most Effective Institutionally sponsored Radio Program during 1948 by a 50-kilowatt Station". This award is also made by the City College of New York.

The series appears on WMAQ, Chicago, 5 days a week at 11:15 A. M.

It is understood that the sponsor is giving serious consideration to eventually placing this health series on a national network.

INTERNATIONAL CONGRESS ON RHEUMATIC DISEASES

The current interest in arthritis and the other rheumatic diseases will receive additional impetus when several hundred physicians from the United States and foreign countries gather at the Waldorf Astoria in New York for the seventh International Congress on Rheumatic Diseases from May 30 to June 3.

A postconvention tour will cover the sixteen days following the session of the American Medical Association. Philadelphia, Boston, Buffalo, Detroit, Chicago, Rochester, and Washington, D. C., will be the cities visited. Scientific sessions will be held at Philadelphia, Boston, and Rochester. Sight-seeing using motor coaches will be included in the itinerary for those visiting Boston, Washington, Niagara Falls, and Chicago.

Inquiries concerning registration, the complete program, and other aspects of the Congress can be addressed to Mr. Robert D. Potter, Executive Director, 535 Fifth Avenue, New York, New York.

ORIGINAL ARTICLES

The Physician's Responsibility Toward the Hard-Of-Hearing and Deafened

Francis L. Lederer, M.D., Richard E. Marcus, M.D. and Arnold A. Grossman, M.D.
Chicago

Today the medical profession is able to offer more to the hard-of-hearing and deafened patient than ever before. Yet, it is generally true that the members of the profession find themselves unacquainted with recent advances in the diagnosis and treatment of the patient with hearing loss and, therefore, have been unable to assume their rightful responsibility to that patient.

Much has been written in the lay press and popular magazines about the rehabilitation of the deafened in the Armed Forces, about the possibilities of surgical improvement of hearing, and about the educational training of the deafened child. Such publicity, in the main, has been accurate, and all of it has offered unbounded hope to the millions of hearing-handicapped people in this country and elsewhere. But these people, consulting their physicians, have not been able to receive either the necessary advice or an understanding of their particular situation. It becomes the obligation of the men within the profession, who have had experience with the deafened, to convey their knowledge to their colleagues in order that all may provide confident and enlightened counsel to the hard-of-hearing patient.

The greatest advance in the treatment of the deafened has come in the integration of the services of those various specialized fields and agencies which have concerned themselves for years past with hearing-handicapped people. We

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have always had otolaryngologists, psychologists, physicists, acoustic and electronics engineers, teachers of the deaf and speech therapists, but they have worked alone or in their little groups, occupied with a small specialized phase of the hearing problem. It was the impetus of the last war, producing its great numbers of hearing-handicapped, that forced an overall approach to a situation that had heretofore been handled piecemeal. The hard-of-hearing patient was found to be a person who not only had ears, but also a mind, a social nature, and a spirit; and that all his potentialties and assets had to be considered. The specialists, if they wished, could stand alone, although it was obvious that the patient would fall. This was not a surprising observation, nor a new one, but it resulted in an effective team that applied its collective talents to the person with hearing loss.

As soon as the team of specialists began to function in the Rehabilitation Units, there emerged certain fundamental principles in the understanding of hearing loss in adults. Most important among these were: (1) that no matter how severely damaged was the hearing apparatus, some hearing function usually remained, and (2) that a person with hearing loss can be taught to understand his handicap and then be provided with the implements with which he can resume his place in society as a productive and reasonably happy individual.

Once these lessons were learned, the process of rehabilitation proceeded with uniformly excellent results. It became apparent to the men and women who worked in the units that similar conditions could be applied to the great group of civilian deafened of all ages and that the same results could be obtained. Today such units have been organized and are functioning in some of the universities and in the Veterans' Administration. These large hearing centers consider all aspects of the hearing problem and offer integrated services for the diagnosis and treatment of the deafened and hard-of-hearing patient. The centers also provide a source of training and information to physicians and interested professional people, as well as a nucleus of research activity which constantly will supply new facts to the general knowledge of hearing defects.

Some hearing-handicapped patients will gravitate directly to the hearing centers. By far the greatest majority, however, will come to the family physician. In every community, large or small, he will be the first to be sought out by patients with hearing loss. It is this first visit to the physician that is critical in the future course of the patient. If, in answer to the patient's questions, the physician replies with a "nothing-can-be-done-about-it" or "wait-until-the-child-is-a-little-older" attitude, the patient and the parents cannot help but assume that he has heard the final word from a spokesman in the profession. Many patients will give up and retire hopelessly to their silent and frustrating world. Others become the prey of uninformed hearing-aid salesmen and medical quacks. They squander their money and time in a fruitless effort to find relief. If, however, the physician gives optimistic and sympathetic counsel, the patient can be directed easily into legitimate, scientific, medical channels in which his hearing defect can be diagnosed and proper treatment instituted.

Three groups of hearing-handicapped patients will come to the physician's office, but his responsibility to each of them is fundamentally the same:

GROUP I. THE INFANT AND PRE-SCHOOL CHILD.—A worried mother brings her child to the doctor because he does not seem to respond to ordinary or even loud sounds, or because he speaks poorly or not at all. She already has an intimation that he does not hear well, if at all, but she would like to know exactly what is wrong and what she can do about it. A careful history at this point frequently will suggest the diagnosis of hearing deficiency. So-called congenital deafness can be caused by consanguinity, syphilis, an hereditary anomaly (which may exist in other members of the family), and German measles in the mother during pregnancy, (apparently a very common cause of congenital deafness as well as ocular, cardiac, and other developmental defects). Birth injuries, the Rh factor, anoxia of the new-born are important possibilities. A severe infectious disease early in childhood, such as measles, mumps, scarlet fever, or meningitis, may drive the hearing down to the point where the

child cannot perceive ordinary sounds and is hindered in the development of speech.

While the history is suggestive, nothing less than a complete survey of the hearing mechanism can reveal the true nature of the hearing defect. Supplementary laboratory and x-ray studies may be necessary to establish the diagnosis. It is the responsibility of the physician to inform the mother that a diagnosis must be made but not to feel discouraged if the hearing loss is found to be irretrievable. The patient may be referred to an otologist in the vicinity, or, if that is not possible, the parent can write the Commission For Handicapped Children, 160 North LaSalle Street, Chicago, for prepared information relative to available agencies and facilities. In any case, the mother should be told that if her child be found deaf, his future education can be assured by the many facilities in the State of Illinois conducted expressly for the hearing-handicapped child. There are regular parents' courses organized for the purpose of explaining the methods of rearing a child who cannot hear. These are conducted every summer by the State School for the Deaf at Jacksonville, and during the year by the University of Illinois and the Department of Public Welfare at the Illinois Eye and Ear Infirmary in Chicago. There are deaf-oral classes in most of the urban areas for the children when they become of school age. The children are taught to speak even though they are unable to hear speech, and they are taught vocational skills that fit them for a useful life in a normal-hearing world.

It is imperative that the mother be told emphatically to facilitate her efforts to find out whether her child is deaf and then to begin his education at the earliest possible time. The diagnosis can be made *now* by competent otologists. A delay in diagnosis merely complicates an already difficult problem of education.

GROUP II. THE SCHOOL CHILD.—Cerumen in the ear canals, the various exanthemata of childhood, trauma, and the complications of the common cold cause much of the hearing loss in this group. Apparently, however, the greatest single cause of decreased hearing among these children is chronic eustachian tube obstruction as a result of lymphoid hyperplasia in the nasopharynx. The reasons for the hyperplasia are not entirely clear, but recurrent nasal infections and allergy of the upper respiratory tract seem to be responsible. There are an estimated 1,500,000 to 2,000,000 children in the United States who have defective hearing in one or both ears. In Illinois, of 200,000 known handicapped children, an estimated 50,000 have hearing defects.

Again the physician is consulted by the parents. Sometimes the hearing loss obviously is due to running ears which are remediable under appropiate medical or surgical management. Most often the school child is brought to the doctor because the teacher suspects that poor grades may be due to difficulty in hearing. In some instances, the only presenting symptom is a change in behavior in the child. The teacher or the parents may report that the child has become "naughty", reluctantly answers questions, and shows a lack of desire to join in with the rest of his classmates in study or play.

In the absence of any local ear findings, the only way that the diagnosis can be made is by careful testing of the hearing with tuning forks and the audiometer. If the hearing is found to be deficient, a careful examination of the ears, nose, and throat must be done. The nasopharynx, and the orifices of the eustachian tubes are observed with the post-nasal mirror and electric nasopharyngoscope. If evidence of sinus disease, nasal allergy, or obstruction of the tubal orifices be present, appropriate treatment for the relief of the condition can be started. The antibiotics and antihistaminic drugs are of value in some nasal affections of an infectious or a vasomotor character. The use of the radium applicator in conjunction with judicious removal of excessive adenoid tissue has given the otologist a method to reduce the obstruction at the mouths of the eustachian tubes and, in this manner, to improve the acuity of hearing in selected cases where this type of pathology is found to be a causitive factor.

The school child whose hearing has been found to be incapacitating and for whom no medical or surgical treatment is indicated can be managed in the following ways:

1. Advantageous seating close to the teacher.
2. Scientific hearing-aid prescription and instruction in its use by specialists. Children from

the age of six can be taught to use the aid effectively.

3. Attendance in special classes for the hearing-handicapped, where auditory and speech-reading training is given in conjunction with regular school education.

4. Re-examination at stated intervals by qualified physicians to determine the progress of the hearing defect.

It is exceedingly difficult to reach the great numbers of school-children with occult hearing loss except by means of periodic, routine, hearing testing programs, which should be part of the school health plan. In this regard, we recently concluded a hearing survey of all school children in Will County, which was undertaken by a group of interested local and state agencies at the request of the Governor's Commission for Handicapped Children under the aegis of the University of Illinois.

Using the pure-tone audiometer, a specially selected team of audiometrists tested every child in school according to a pre-arranged schedule. Children found to have 30 or more decibels loss in any frequency in either ear were referred to an otologic clinic, conducted by qualified otolaryngologists supplied by the University of Illinois. The organizational work in the schools was administered by the staff of the Will County Health Department. The children were given a complete ear, nose, and throat examination in the presence of the parents. Those found with ear, nose, or throat disease contributory to the hearing defect were referred to their family physician or otologist of choice. That physician, in turn, sent an abstract of his treatment to the Health Department where a running record of the Child's progress was kept.

In the survey of 21,000 children in Will County, approximately 7%, or 1,550 children, have been found to have significant hearing defects which are in need of preventive or active medical management.

It is within this group of school children that the most important work for the detection, improvement, conservation, and rehabilitation of hearing can be realized. Early diagnosis and treatment can be instituted. All fundamental prevention of deafness programs will have their bases in these surveys. Since the physician is a key figure in any health program, it is his responsibility to understand and encourage carefully planned and scientifically conducted hearing surveys in his community.

GROUP III. THE ADULT.—Fifty percent of all adult hearing losses have their beginnings in childhood. The complications of recurrent colds, eustachian tube obstruction, and otitis media leave their mark. Gradually, insidiously, diminution of hearing acuity creeps up on the adult who has had "trouble with his ears as a child". He has to strain to hear conversations that he formerly followed with ease. Words escape him. He sometimes laughs when no joke was intended. He develops a feeling of insecurity. He worries about keeping his job. Life, troublesome as it is, becomes more so. In the same boat with him is the other 50% of adults whose hearing loss is caused by otosclerosis, trauma, drug, and systemic intoxications.

All these people need help of a very special kind. They need, first of all, an accurate, inclusive diagnosis. Some adult deafened can be helped by proper local or systemic therapy. Otosclerotics may be suitable candidates for the fenestration operation. It is a procedure which does not as yet promise full or complete restoration of hearing, but hope is to be expected from further study and application of the operation under proper indications and careful surgical technic.

The predominant mass of adult-hearing-handicapped can be restored to useful individual function as follows:

1. Diagnosis (Intracranial and systemic disease must be ruled out).
2. Explanation of the handicap to the patient.
3. Medical and surgical treatment as indicated.
4. Scientific evaluation of a suitable hearing aid under proper sound-deadened conditions.
5. Speech reading.
6. Auditory training — gradual development of tolerance for amplified sound and discrimination of speech.
7. Vocational and psycho-social guidance — discovery of abilities and aptitudes — personality assets.

CONCLUSIONS

1. Every member of the medical profession must reevaluate his attitude toward the hard of hearing and deafened patient in the light of

recent advances in the diagnosis and treatment of hearing defects.

2. It is the responsibility of every physician to encourage early diagnosis of hearing loss in the infant and pre-school child and to advise parents of the proper channels through which they may obtain help.

3. It is the physician's responsibility to encourage the search for hearing losses in school children and to recommend definitive treatment.

4. It is the physician's responsibility to acquaint the adult hard of hearing and deafened patient with the possibilities of medical, surgical, and rehabilitative treatment — to aid in the conservation, prevention and alleviation of deafness.

1853 West Polk Street.

Observations On Prophylaxis Of Puerperal Infection

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Ever since the days of Kirkland[1], Gordon[2], Holmes[3], Semmelweiss[4], Lister[5], Pasteur[6], and others, medical men have been seeking methods to prevent puerperal infection. The increased number of pregnancies, inadequate bed space, and scarcity of hospital personnel have increased the danger of, and have emphasized the importance of reviewing available methods to prevent this disease.

A better knowledge of prophylactic measures should insure a minimum of maternal and faetal deaths, fewer surgical and medical complications in women, and fewer coronary accidents in men practicing obstetrics.

Charles White of Manchester, in 1773, Thomas Kirkland of Ashby, in 1774, and Gordon of Aberdeen, in 1795, were the first to consider puerperal infection as a contagious malady. Oliver Wendell Holmes, in 1843, further emphasized this, but his suggestions were merely the "counsel of despair". He advised the physician to stop practice for a time, take a bath and buy new clothes. Semmelweiss went further by introducing the use of a solution of bleaching powder for disinfecting the hands, and reported a striking reduction in puerperal sepsis. Lister emphasized antiseptic methods, and finally Pasteur clinched the problem by developing the field of bacteriology. Now, no one doubts the infectious nature of the disease.

At the 1947 meeting of the American Congress of Obstetrics and Gynecology, such men as Eastman and Greenhill stated that puerperal infection is still the greatest obstetrical hazard, outranking hemorrhage and toxemia as the chief cause of maternal deaths.

Stander[7] believes the prophylactic measures that will prevent puerperal sepsis are far superior to the most specific of the newer therapeutic agents. He who is best acquainted with the natural history of the disease will have the greatest skepticism concerning remedies of all sorts, until their value has been confirmed by conscientious observers using approved methods of investigation, and will be most cautious in treating desperately ill women except with known and accepted methods. Experience shows that well chosen and timed operative procedures have a low incidence of the disease in contrast to those patients upon whom ill advised and poorly timed procedures are carried out.

Puerperal morbidity is defined as a temperature of 100.4 or higher on two consecutive days

after delivery of the baby, exclusive of the first twenty-four hours.

Prophylactic measures to prevent such rise is the theme of this paper, and a review of many of the methods suggested or tried will be discussed. Our chief interest in this study is with prevention or the prophylaxis of infection of the female genitalia after pregnancy. Extra genital types of morbidity as mastitis, pylitis, cystitis, upper respiratory infections will not be considered.

Puerperal infection is believed to be primarily a wound infection. Laceration of the vaginal vault, episiotomies, cervical tears, and denuded surfaces of cervis and uterus offer a portal of entry for virulent organisms. Separation of the placenta and its membranes also provide a vulnerable surface for infection.

To understand better the prevention of puerperal infection, one should know the chief organisms which cause the disease, their chief source, and their mode of entry.

The ones most frequently found in puerperal morbidity are aerobic alpha and beta hemoylitic streptococcus, anaerobic non hemolytic streptococcus, staphylococcus aureus, Clostridium Welchii, the colon proteus group, pneumoccus and gonococcus. There is some disagreement as to the frequency of each.

There are two types of infection to be considered, the exogenous and the endogenous. The exogenous infection is one that is brought into the vaginal tract as a new offender. Droplets may be sprayed from nose and throat of any one present during labor, even from the patient. Chief of these are the aerobic beta hemolytic streptococcus. It is recognized as the most virulent of all. Colebrook[8] draws the conclusion, "That in most of these cases the streptococcus concerned was not present in the mother's genital tract before delivery but was conveyed to it in some way during or after delivery. Sometimes from some other part of her own body, more often perhaps from an extraneous source". He further states, "All evidence we have, therefore, based on the examination of 855 women by my colleagues, Drs. Fry and Hare, indicate that the dangerous variety of Haemolytic streptococcus is hardly ever present in the genital tract at the onset of labor". He believes that the spread occurs by contagion by any channel by which a droplet or spray infection ordinarily occur and that the organism is usually the streptococcus hemolyticus.

The English authors would then advocate careful check on the common colds, all open infections, and acute upper respiratory infections. This check should be made on the patient, those in the same house, and all attendants at time of delivery. Isolation when possible, careful masking and thorough cleansing of vulva-perineal area are imperative. J. H. E. Woltz[9] and many others are in accord with Colebrooks conclusions.

The endogenous or auto infections are those in which the organisms are present in the vaginal tract before labor. These gain access to the vagina and placental site by douches, late coitus, vaginal or rectal examinations and by the trauma of labor and delivery. Many American investigators believe most puerperal infections are endogenous, the anaerobic non hemolytic streptococcus being the most common offender and the most difficult to control. This organism is particularly resistant to chemo therapy and antibiotic remedies.

Colebrook, Doderlein, Menge, Williams, and others believe that most organisms inhabiting the vagina are not pathogenic and the average woman is resistant to the organisms of her own vagina. R. Gordan Douglas and Davis[10] indicate in their studies of 1000 cases that the endogenous strains of different non hemolytic streptococcus are the chief causes of puerperal morbidity. Stander also agrees with this opinion.

Lopez[11] found anaerobic streptococcus in vaginal flora of 10% of obstetrical cases. However, none of these had clinical manifestation of auto infection with this organism. Morbidity occurred only in presence of vaginal and cervical lesions before the local infection could gain a foothold.

We can divide the study or methods used in prophylaxis of puerperal morbidity into those chiefly concerned with the antepartem period, the intrapartem, and the postpartem, the last two over-lapping somewhat.

J. Bernard Berstine[12] has reported several series in the antepartem period in which the bacteriology of the birth canal of pregnant women was studied by cultures. Vaccines were made in all, and eight to thirty injections given from second to seventh month of pregnancy. Puerperal morbidity in over 1400 cases was 4.6%, as compared with 19.6% in the control group. In

the vaccination group there were no side effects on the babies or mortalities in the mothers.

Good antepartem care should lead to the investigation of all abnormal leucorrheal discharges. An attempt should be made to indentify the organism involved which will usually be found to be the trichimonas, monilia, gonococcus, or streptococcus. Active and adequate therapeutic measures should be taken, preferrably before the seventh month of pregnancy.

Other open wound infections or any other foci of infection should be recognized and treated, as sinusitis infections, furunculosis, or any pus forming infection in rectal-vaginal area.

Anemias should be classified and adequately treated. One of the pregnant woman's best defenses against puerperal infection is the maintenancy of a normal compliment of blood throughout her entire pregnancy—blood transfusion given when needed. The determination of the Rh factor and blood type is as important as the Kahn test in the antepartem period.

The dystocia clinics are helping to cut down puerperal morbidity by segregating the border line pelves into a separate class. Surgical interference can be properly timed, if labor does not proceed normally. The Mueller method of impression in the last month is helpful for the average case. If the head cannot be impressed to the level of the ischial spines, one should be alert to intervene at the most ideal time during labor.

The intra and postpartem periods should be considered the most important because the proper handling at this time will definitely lower morbidity.

Stander has laid down many rules which, if adherred to, would certainly make morbidity a rare or harmless affair. R. G. Douglas and I. Davis advocate similar ideas, adding that rigid aseptic rules are not enough to prevent morbidity. First: Maintenance of strict asepsis as wearing of mask by the obstetricians and all attendants. Second: Restriction of vaginal exams within narrowest limits possible. Third: Greatest possible utilization of abdominal palpation and rectal examination. Fourth: Omission of prophylactic vaginal douche. Fifth: Immediate repair of perineal laceration which might otherwise offer foci for infection, preceded by redraping of patient, and changing of gloves after delivery of placenta and before repair. Sixth: Regard the genital canal of the puerperal woman as a "noli me tangere" into which neither finger nor instrument should be introduced except in emergency. This implies omission of all unnecessary operative procedures. To this could be added proper timing of surgical interference to minimize undue trauma to birth canal. Seventh: Replacement of excessive blood loss immediately after delivery is a most important prophylactic procedure in the prevention of infection.

Many articles have been written on the vaginal instillation of antiseptics during labor as a routine measure to lower morbidity. Richard Gates[13] of Philadelphia, reports use of Bimerphen solutions, and compares its use with other antiseptics instilled vaginally at regular intervals during labor. He states that morbidity figures released from several centers prior to the use of vaginal instillations indicate morbidity of 15-20%, with a marked reduction after its use. Specific reference is made to the reports of Schwartz and Brown[14] in 1926. A reduction of morbidity by one-half was accomplished after using mercurochrome, in 1926, and iodine in glycerine, in 1930.

Brown, in 1940, reports 13 deaths in 9529 deliveries prior to vaginal instillations, and after advent of instillations there were no deaths in 12,913 deliveries. Tritsch[15], in a comparative study using amphyl and 4% aqueous mercurochrome, found an equal efficiency with both. The morbidity in spontaneous deliveries was 5.4% and in operative cases were 7.4%. Mayes[16] reports using 4% aqueous mercurochrome in 13,763 deliveries at Methodist Hospital, Brooklyn, with a reduction from 14.8% to 5.3%. Two deaths from sepsis in 25,345 vaginal deliveries with none in the last 11,000. He used one to one thousand solution of zephiron in 837 cases with morbidity 8.7%. Hahnemann Hospital[17], Philadelphia, reports a morbidity of 7% with S.T. 37 in 1000 cases, a morbidity of 6.94% with mercurochrome, 10% morbidity with mercurochrome as a spray, and 12.02% with amphyl instilled vaginally in 707 cases.

Stander quotes studies of Douglas and Rhees demonstrating that it is almost impossible to sterilize the vagina by employing antiseptic solutions such as merthiolate, metaphen, mercurochrome, and acriflavine. In addition, a critical analysis of the statistical data presented

by the proponents of this principle has not convinced us (Stander) that their results can be attributed to the antiseptic employed. He is not prepared to advocate this principle as a routine procedure. This method would be chiefly for the endo or autogenous type of infection.

A comparison of results using various antiseptics for perineal preparation, at time of delivery, has not been attempted in this paper, the assumption being that the perineum is prepared for delivery in the same manner that the abdomen would be for an abdominal surgical procedure.

Whitacre[18] reports in bacteriologic study of uterus in the postpartem period, that one out of ten show bacterial growth in two hours, and that all showed growth in two to five days. This would stress the early use of any reasonably active prophylactic treatment.

Chemotherapy and the antibiotics are the most important medications now assuming greater importance in the prophylaxis of morbidity. Most work has been with the sulfonamides and penicillin. Streptomycin, the newest, is being used chiefly where the others fail.

Meave Kenny believes small doses of the sulfonamide drugs are ineffective for prophylaxis unless curative blood levels are maintained. Stander, Colebrook, and others have determined the sulfa drugs that are the least toxic and have the greatest action against certain organisms. In general, this type of therapy is directed against all potential organisms. However, it is desirable to direct treatment against a specific organism that is known to have been present in the vagina before labor, or one to which the patient has had a recent exposure. Douglas and Stander reported the ineffectiveness of Sulfadiazine therapy when infection is well established.

Sulfapyridine is effective against staphylococcus and bacillus Coli, but has the highest capacity for crystalluria. It has also been of value in the treatment of pneumococcus, gonococcus and Clostridium Welchii.

Sulfanilamide has been used widely in the British Isles. It has certain toxic tendencies.

Sulfadiazine is less toxic and has a wider range of clinical usefulness. The best clinical results can be expected from this drug if the potentially infecting organisms are the aerobic beta hemolytic streptococcus, colon becillus, gonoccus, and staphylococcus aureus. Results are not conclusive in the aerobic and anaerobic non hemolytic streptococcus.

Douglas and Landesman give one grain of sulfadiazine every four hours for a total of six grams in twenty-four hours, plus four grams of sodium bicarbonate for a total of twenty-four grams in the same period.

Penicillin gives excellent results in hemolytic streptococcus infections. It is used in the other streptococcus conditions, staphylococcus, and in other gram positive organisms, with results that justify its prophylactic use. It apparently has little effect in the colon and aerogenes group.

Massel has suggested a synergistic action when the antibiotics and the Sulfa drugs are used together, because the one affects chiefly the gram positive and the other the gram negative organisms.

Chemotherapy and the antibiotics are used in many other ways besides the oral and parental routes.

The Mayo Clinic[20] reports the inserting vaginally and rectally of suppositories containing 100,000 units of penicillin. They report good results of this method as a routine prophylactic measure in preparation of patients for delivery, especially with premature rupture of membranes, and in preparation of Caesarean section.

Carrington[21] believes in using sulfanilamide singly and in combination with sulfathiazole by rectum and vagina after operations on these viscera because it makes for smoother convalescence. Both drugs are absorbed rapidly and constantly from the peritoneum. He reports variable absorption from vagina and rectum, slowest from the former. He considers it a prophylactic measure after vaginal surgery.

Powers and Cravotta[22] believe immediate postpartem administration of penicillin shortens the recovery period after Caesarean section by preventing morbidity. Pierce in a recent controlled study of 1573 obstetrical cases reports a reduction of genital tract infection from 5.3 to 2.3% when penicillin vaginal suppositories were used.

Verne J. Reynolds[24] adds 2500 oxford units of penicillin to each cubic centimeter of anesthetic used in local infiltration anesthesia for repairs of incision and laceration of vulva

vagina perineal areas. He used this method in 81 consecutive repairs, with average of 45 cubic centimeter, with excellent results.

Sewall and Coulton [25] report "Manual removal of placenta in 45 minutes if crede method fails. This is followed with immediate use of sulfadizine and penicillin certain cases. He reports morbidity of 2% as compared with 42% and no mortality as compared with 10-15% in the past".

Greenhill[26] believes sulfonamides and penicillin are among the greatest blessings to mankind. We can conclude with him and many other obstetricians that the sulfonamides, and antibiotics used prophylactically will lower morbidity if used during and immediately after prolonged labors, early rupture of membranes, in cases where many vaginal examinations have been made, cases of extensive vaginal trauma and lacerations, difficult forcep cases, most Caesarean sections, and other conditions associated with delivery that might possibly give a morbidity.

Gordon and Landesman[27] believe the control of infection by these prophylactic agents broaden the safe employment of Caesarean section; lessen urinary infection, and decreases infantile mortality. Keettel, Plass, and Scott[28] report favorable results with prophylaxic administration of penicillin in prolonged labor, postpartem hemorrhage or difficult operative delivery.

There is, however, no escape from the fact that avoidance of undue trauma and manipulation in the birth canal is the primary and most important means of preventing puerperal morbidity.

Daro believes, in his present management of prolonged labors at Cook County Hospital, that the judicious use of pituitrin in selected cases can be considered a contributing prophylactic measure against morbidity. Labor is markedly shortened and the incidence of operative procedures lessened in may cases.

Early ambulation has been suggested as a factor in lowering morbidity. A discussion of this controversial subject is not warranted in this paper. Repair of perineum with fine catgut — single chromic O to triple chromic O tends for quicker healing and less chance of infection.

The Westlake Hospital reports a small series of cases in 1944 with a 9% morbidity with vaginal instillation of 8 cc. merthiolate every four hours during labor; 6% morbidity with the usual aseptic surgical technic alone and a 5% morbidity with the oral administration of one gram sulfadiazine three times a day for three days, beginning immediately after delivery of baby. In 1947, the morbidity was reduced from 8% to 4% with redraping of patient and changing of gloves before repair of perineum, plus giving of antibiotic and chemotherapy in selected cases.

H. F. Connally, Jr.[29] reports 442 cases that were given intramuscular injections of 5 mg stilbesterol in oil after delivery and 5 mg orally each day during their hospital stay, with a morbidity of 5.6% as compared with 20.1% in the control group. 45.3% nursed their babies, in the stilbesterol group, as compared with 74.4 in the control group. The speculative explanations were: because of increased uterine tone and blood supply, sensitivity to oxytoxic drugs, increased endometrial regeneration, alteration of vaginal PH, and suppression of mammary engorgement.

Galloway[30] regards the vulva in puerperum as an open wound and suggests a simple procedure of using sulfanilamide powder on all perineal pads to lower puerperal morbidity.

At Westlake Hospital, a routine blood count is made on the third day postpartem of all patients. Those with a hemoglobin below 85% or blood count below 4,000,000 are automatically given 2 capsules ferrous lextron. The attending physicians are immediately notified if the hemoglobin is below 65% and red blood count below 3,000,000. Blood transfusions are given in selected cases. This method definitely hastens complete recovery and lessens chances for any delayed morbidity.

CONCLUSIONS

The many methods reviewed in this paper emphasize that prophylaxis of puerperal morbidity or sepsis is concerned with the entire period of pregnancy, that it involves many factors and many principles, and that close adherence to these are of utmost importance. Prophylaxis is much more complicated than the administration of certain drugs to cover up mismanaged and faulty technic in obstetrical delivery. However, the newer drugs certainly

have saved many morbidities and mortalities that otherwise would have occurred.

Prophylaxis of puerperal morbidity is far more important than the treatment of puerperal sepsis, as the first precludes the secnd. Adherence to aseptic technic at delivery is not sufficient in itself to eliminate all cases of puerperal morbidity.

Prophylaxis of puerperal morbidity begins with the antepartem period such as control of leucorrhea, maintenance of an adequate blood picture, and an attempt to recognize potentially difficult labors before labor begins.

Prophylaxis of morbidity in the intrapartem period emphasizes the necessity of eliminating sources of the organism that are known to cause puerperal disease, the necessity of handling of delivery with the least amount of vaginal examination and trauma to the birth canal, and proper timing of surgical interference.

The prophylaxis of puerperal morbidity in the postpartem period necessitates prompt recognition of blood loss, and a rapid replacement. The use of chemotherapy and antibiotics during or immediately after delivery in all potentially infected cases plays a very important part in the prophylaxis of puerperal morbidity. The synergistic action of the sulfa and antibiotics is suggested. The control of infection by these prophylactic agents broadens the safe employment of Caesarean section and reduces the need for Caesarean hysterectomy.

The routine use of the sulfa and antibiotics in all pregnancies is not recommended at this time.

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CORRECTION PLEASE!

In the original article "Routine Photofluorography of the Chest" by John A. Mart, M.D., Kenneth V. Powers, M.D., and Earl E. Barth, M.D. which was published in our April issue there were two errors. Both appear in the second column on page 237.

The third sentence in the column should read "Careful histories were taken, painstaking physical examinations were made, and routine laboratory procedures which included complete blood count, urinalysis and Kahn test, were carried out".

In the bottom paragraph in the same column the third and fourth sentences should read "The films were studied very critically and if there was only a slight suggestion of an abnormal shadow *or line, or of pleural or peribronchial thickening, the films were considered abnormal. This number did not include well defined calcified shadows*, presumably first infection tuberculosis, or obvious heart disease.

In each instance the italicized words were omitted from the published article.

Detection Of Various Chest Lesions By Mass X-ray Survey

Dan Morse, M.D.
Peoria

In 1895 William Konrad Roentgen discovered the x-ray. With this invention the taking of x-ray pictures for medical diagnosis was first started. Mass surveys which bring about the x-raying of large groups of individuals and even entire populations, represent the highest development of this diagnostic procedure to date. During the past emergency the United States government demonstrated the practicability of taking thousands and thousands of chest x-rays. Millions of chest films have been taken on members or prospective members of the armed forces, and thousands of early treatable cases of tuberculosis have been referred by the Induction Stations to local authorities for management. Toward the end of the last war, this problem of mass x-raying was taken up by civilian agencies and public health departments.

This paper concerning the detection of the various chest lesions by mass x-ray surveys will be divided into three parts:

1.) A discussion of a few problems encountered in conducting large surveys.

2.) A few statistics

3.) Presentation of some cases.

One problem is the role of the private physician. No public health project, and this includes x-ray surveys, has ever been completely successful without enlisting the cooperation and aid of the family physician. The x-raying agency should report promptly to the family physician the complete findings on the survey x-ray; they should turn over to him for management all people with chest pathology discovered during the survey — this applies particularly to non-tuberculous disease; and they should work with the physician on all the discovered tuberculosis cases as to their disposition. On the other hand, the family physician should cooperate with the x-raying agency, and should not hesitate to obtain consultation with chest specialists in his community or with the local chest clinic, in the matter of treatment of cases of tuberculosis, and also in making a diagnosis on questionable cases.

Another problem is the tendency in some communities to over-emphasize x-ray surveys. On the surface it seems that a procedure that effectively discovers early treatable disease could not be over-emphasized, but a tuberculosis control program encompasses many procedures. There is treatment, isolation of the contagious, public health legislation and education, and many other things that are all necessary. Over-emphasis of any one portion of a well balanced tuberculosis control program is almost as good as nothing at all. Mass x-ray case finding should be conducted in every community, but other things should not be entirely neglected.

Some of the other problems, which as yet have not been entirely solved are: How often should survey x-rays be taken on a group of individuals; how to persuade people to consent to have a chest film taken; and the handling of the follow-up which means months and even years of hard work on the part of physicians, nurses, and health authorities after each large survey.

This first chart shows various types of x-ray surveys conducted in Peoria during 1947. Nearly 60,000 films were taken which is a pretty good record considering that the population of Peoria is just a little over 100,000. However, many of these surveys reached into the surrounding communities. It is noted that the highest incidence of total cases of tuberculosis and other pulmonary pathology is in those who are sick, such as hospital admissions, people attending a clinic, persons on relief, and those who are contacts of active cases.

Presented before 108th Annual Meeting Illinois State Medical Society, Chicago, May 10-12, 1948.

Chart No. 1

X-RAY SURVEYS — PEORIA, ILLINOIS — 1947

Name of Survey	No. of films taken	Pulmonary TB Total cases No.	%	Other Pathology No.	%
Community Clinic	96	4	4.1 %	11	11.5 %
Contacts Survey	490	14	2.85%	—	—
Relief Applicants	158	3	1.89%	14	8.85%
Other Surveys	306	4	1.3 %	4	1.3 %
Industrial & Community	38,255	140	.36%	289	.75%
Bradley Univ.	3,488	12	.35%	10	.28%
Pre-Employment	10,626	35	.33%	69	.65%
High School	187	—	—	5	2.7 %
School Employees	696	—	—	3	.44%
Hospital Admissions	5,085	Total significant chest lesions		261	5.13%
TOTAL	59,387	212	.39%	666	1.12%

In an analysis of the status of the 212 total cases of tuberculosis found during 1947 in the total x-ray surveys, 31 are considered active, either because of a positive sputum or the demonstration of x-ray progression of the disease, 51 are classified as questionably active and need further study before their status can be determined, and 130 are thought to be arrested.

Chart No. 2 shows the breakdown of the industrial and community wide survey conducted in Peoria with the help of the State Health Department during the summer and fall of 1947.

Chart No. 2

INDUSTRIAL & COMMUNITY SURVEYS — 1947 — PEORIA, ILL.

Total x-rays:	Caterpillar		16,559	
	Other		21,696	
			38,255	
Total number of small films with suspicious pathology:				557
TB Suspects:		268		
Active	6			
Unstable	38			
Arrested	96			
	140			
Normal chest and diagnosis incomplete or other conditions found	128			
		268		
Other pathology:		289		557

Chart No. 3

INDUSTRIAL & COMMUNITY SURVEYS — 1947 — PEORIA, ILLINOIS

Tuberculosis status as of March 1948

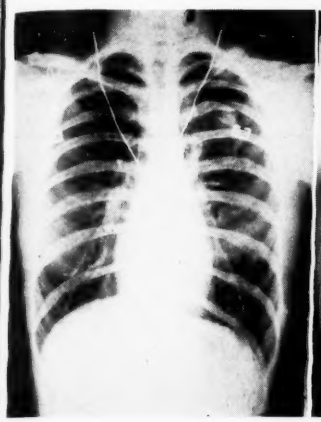
		UNKNOWN CASES		KNOWN CASES	
			Total		
Active	Min.	1		1	
	M. A.	1		0	
	F. A.	2		1	
			4		2
Unstable	Min.	30		3	
	M. A.	2		0	
	F. A.	3		0	
			35		3
Arrested	Min.	53		33	
	M. A.	2		3	
	F. A.	0		5	
			55		41
			94		46

% Unknown — Active .01 %; Unstable .09 %; Arrested .144%; Total .244%

Total x-rays taken: 38,255

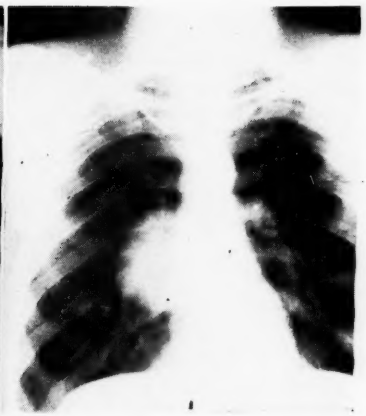
There are 557 miniature films showing suspicious pathology, and out of these, after preliminary follow-up work was performed, 140 showed evidence of some form of tuberculosis.

This chart breaks this down still further. Of the 140 cases of tuberculosis discovered, 46 were



CASE 1. Clothing shadow simulating pulmonary disease.

CASE 2. Eccentric position of great vessels.



CASE 3. Pulmonary tumor.

already known to exist at the time the survey was made, while 94 had never been diagnosed previously.

Chart No. 4

INDUSTRIAL & COMMUNITY SURVEYS — 1947 — PEORIA, ILLINOIS

Cases of tuberculosis discovered:		140
Minimal	121 — 86.4%	
Mod. advanced	8 — 5.7%	
Far advanced	11 — 7.9%	

This chart gives us the breakdown according to the extent of the disease. In most surveys between 70 and 90% of tuberculosis discovered is in the minimal stage. If we wait for symptoms to develop before x-rays are taken, then the reverse is true, and the great majority will be in the advanced stages of the disease.

The upper half of chart No. 5 shows that there were 696 survey films taken on all teachers and school employees in the city during 1947. No cases of tuberculosis were found this past year, but we know that an annual film taken on these people will guarantee to the community that their children will not be exposed to tuberculosis at school. The lower portion of the chart shows the x-raying of the positive tuberculin reactors in the high schools of Peoria. During 1947 there were no cases of tuberculosis discovered. The incidence of tuberculosis among these people is quite small, but in the 7 years since 1940 when this program was started, 3 cases of active tuberculosis were discovered in these school children representing 8,841 individuals tuberculin tested, of which 1,144 were x-rayed because of a positive tuberculin reaction.

On chart No. 6 we have the pre-employment survey conducted at Caterpillar Tractor Company. Nine cases of active disease were found in over 10,000 films taken during '47. This

Chart No. 5

SCHOOL EMPLOYEES SURVEY — 1947 — PEORIA, ILLINOIS

Total miniature films taken		696
Large films and further study recommended		24
Final diagnosis on retakes:		
Normal chest	21	
Chest deformity, severe	1	
Increased markings, further observation needed	1	
Pneumonitis	1	
		24

X-RAYS TAKEN OF POSITIVE TUBERCULIN REACTORS IN HIGH SCHOOLS OF PEORIA DURING 1947

Total number of films taken		187
Recommended for large films and further study		22
Final diagnosis on retakes:		
Normal chest	17	
Increased markings, recommended further study	2	
Old healed pleurisy	1	
Refused retakes	2	
		22

Chart No. 6
PRE-EMPLOYMENT SURVEY — CATERPILLAR TRACTOR COMPANY'

		Number	Number permitted to work
Total number of films taken:	10,626		
Total number of abnormal films:	458		
Increased pulmonic markings — not permitted to work in foundry		354	354
Evidence of definite lung pathology with findings as follows:	104		
Silicosis		4	3*
Excessive calcification		49	49
Pleurisy, healed		8	8
Chronic fibrosis		2	2*
Bronchiectasis		2	2
Healed lung abscess		1	1
Cystic disease of lung		1	1
Pneumothorax, chronic spontaneous		1	1*
Mediastinal Tumor		1	0
Pulmonary tuberculosis	35		
Active		8	0
Pleural effusion		1	0
Probably arrested		23	23*
Unclassified-TB to be ruled out		3	3*
*Periodic x-rays required			
% active tuberculosis to total films taken:	.08%		
% total cases tuberculosis found:	.33%		

chart is interesting from several angles. It demonstrates the excellent medical placement procedure carried out in a large factory. Many of these people with pulmonary pathology were permitted to work only because the Medical Department was able to place them in suitable jobs.

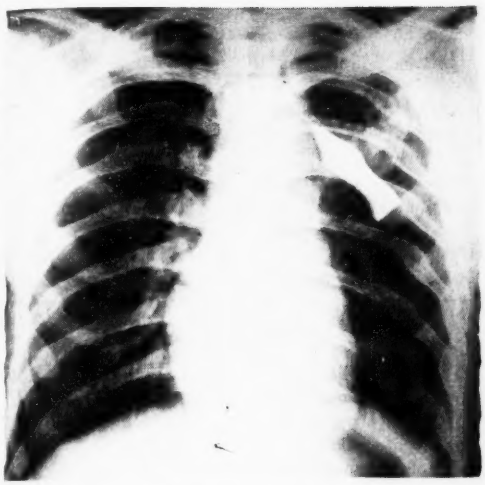
Chart No. 7
X-RAYS OF HOSPITAL ADMISSIONS — 1947 — PEORIA, ILLINOIS

Total Hospital Admissions:	26,217
Total admission x-rays taken:	5,085
% x-rays to total hospital admissions:	19.4%
Total significant chest lesions discovered needing further x-ray studies:	261
% of abnormal films to total films taken:	5.13%

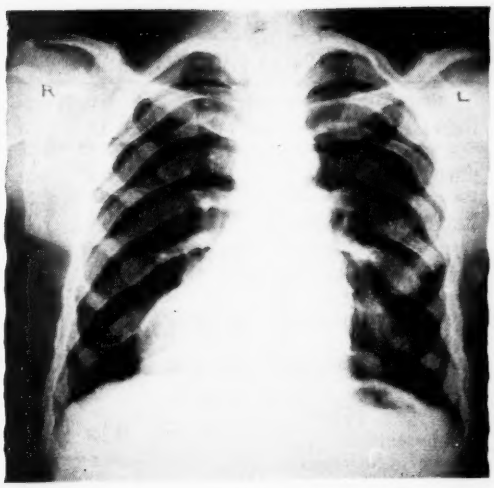
Chart No. 7 shows the hospital admission survey films taken in Peoria. The two largest hospitals have installed x-ray equipment to take films on all their admissions. The number of cases of tuberculosis discovered by this method is not known, as the follow-up work is done through the private physicians, and the only report sent to us is the number of significant abnormal films which required further study. Personally, I know that these admission films did uncover several cases of active tuberculosis. There were 26,217 total hospital admissions, and only 5,085 admission films taken. Of course, it is impossible to take admission films on all people admitted, but a percentage of less than 20% seems rather low, and one of the chief purposes for taking these films, i. e. protection of nurses and hospital personnel, is cancelled by such a low percentage. This percentage could be raised considerably, if the hospital administrators would be a little more enthusiastic about carrying out this project, and if the doctors who admit patients to the hospital insist that they be given this extra service.

Chart No. 8 shows the Community Clinic survey. The total number of films taken —96 — represents the positive tuberculin reactors out of a total of 250 admissions to the clinic during the year. If we consider this total number, the incidence of tuberculosis discovered (1.6%) is still quite high.

In the study of these charts, especially in regard to the Clinic and hospital cases, and additional information we have concerning the patients of private practitioners, we know that the unsuspected tuberculosis rate among the sick and ailing is quite high. This means that the new patients coming to a busy general practitioner will have a high incidence of pulmonary tuberculosis. This incidence is present even in



CASE 4. Knife blade in lung. History of fight 5 years before x-ray.



CASE 5. Dextrocardia without situs inversus.

those who do not complain of the ordinary symptoms generally attributed to pulmonary *disease. Two of the more common, little known* symptoms of early tuberculosis are vague indigestion, and easy *fatigability. What can* the doctor do about this? If he has a fluoroscope, the answer is obvious. Fluoroscopy of the chest of all new cases appearing in the doctor's office, *regardless of complaints,* will produce surprising results as far as discovering early cases of tuberculosis is *concerned. One doctor, according to a recent* American Review of Tuberculosis editorial[2], fluoroscoped all new patients who came to his office, and in 250 patients he found 7 active cases of tuberculosis, an incidence of nearly 3%. A physician in Peoria[3] made the practice of routinely fluoroscoping every new case, and discovered in less than a year, 4 active cases of tuberculosis in patients who had no symptoms referable to pulmonary disease, and also 3 cases of primary pulmonary tumor, several cases of unsuspected metastatic disease, plus other cases of cardiac and aortic pathology. If a physician does not have a fluoroscope in his office, then it has been the practice of some, *especially pediatricians, to do a* tuberculin test on all new admissions, and x-ray all positive reactors. If this is not *practical, then the* physician should insist on an x-ray of anyone with symptoms that are not immediately attributed to some other cause, and in addition to insist on x-rays of those with a family history of tuberculosis, of those who have a history of recent contact with tuberculosis, and if desired he can go still further and refer to a local chest clinic for x-ray all those in the low income *brackets.*

Chart No. 8
COMMUNITY CLINIC SURVEY — 1947 —
PEORIA, ILLINOIS

Total number of films taken:		96
Recommended to have retakes:		45
Final findings on retakes:		
Normal chest	30	
Pneumonitis	2	
Chronic fibrosis	1	
Pleural adhesions	1	
Tumor of lung	1	
Increased markings, need further observation	5	
Refused retakes	1	
Bronchial TB Active	1	
Minimal TB Active	1	
Far Adv. TB Active	1	
Total Active TB	3	
Far Adv. TB? Activity	1	
% active tuberculosis to total films taken:		3.1%
% total cases of tuberculosis found:		4.1%

Now what about the other lesions besides active tuberculosis that are discovered in these *surveys? There were over 900 significant* abnormal chest films besides tuberculosis discovered during the *1947 Peoria surveys.*

Chart No. 9 shows the other pathology discovered in the recent industrial survey held at *Peoria.*

Chart No. 9
INDUSTRIAL X-RAY SURVEY — 1947 —
PEORIA, ILLINOIS

Other pathology fund:	No.	Percent
Increased markings (need more x-rays)	12	.031
Fibrosis (bronchiectasis, asthma, etc.)	26	.068
Pneumonitis, acute	14	.036
Pleurisy (apparently inactive)	85	.22
Excessive calcifications	8	.02
Cystic disease of the lungs	2	.005
Diaphragmatic hernia	3	.007
Eventration of diaphragm	10	.026
Spontaneous paralysis of diaphragm	1	.0026
Lung abscess	3	.007
Pulmonary pathology unclassified (tuberculosis to be ruled out)	22	.057
Pulmonary tumor	10	.026
Emphysema	3	.007
Tumor of diaphragm	1	.0026
Silicosis — 1st stage	21	.054
2nd stage	5	.013
Shot gun pellets	4	.010
Severe chest deformity	20	.052
Cardiac hypertrophy	21	.054
Wide aortic shadow	5	.013
Dextrocardia	2	.005
Total	278	.72

Total x-rays taken: 38,255

A review of 223,182 x-ray films taken at an Army Induction Station during the recent war[4] shows significant non-tuberculous chest lesions as follows:

PERMANENT REJECTIONS —
Camp Shelby, Mississippi

Reasons for Rejection:	No.
Pleurisy, severe	221
Pneumonitis, severe	159
Spinal deformity	56
Passive congestion with enlarged heart	20
Marked cardiac hypertrophy	95
Bronchiectasis, proven	4
Pulmonary tumor	19
Post-lobectomy, with extensive fibrosis	2
Pneumothroax, simplex	28
Aneurysm or aortitis	51
Coarctation of aorta	1
Cystic disease of lungs	6
Subdiaphragmatic abscess or tumor	2
Pleural tumor	1
Knife wound of chest	1
Tumor of rib	6
Post-traumatic deformity	1
Unclassified pulmonary pathology	15
Gunshot wounds of chest	9
Tumor of diaphragm	3
Tumor of mediastinum	4
Acquired dextrocardia, severe	2
Atelectasis	3
Severe deformity of chest wall	4
Lung abscess	4
Pulmonary fibrosis	27
Post-thorocoplasty	3
Cardiac distortion	3
Patent ductus arteriosus	1
Emphysema, severe	10
Paralysis of diaphragm	2
Scapula deformity, severe	3
Diaphragmatic hernia, verified	6
Boeck's sarcoid	1
Hydropneumothorax	1

TEMPORARY REJECTIONS —
Camp Shelby, Mississippi

Reason for rejection:	No.
Pneumonitis, mild to moderate	179
Pleurisy, Moderate	21
Increased markings, moderate to severe	10
Childhood tuberculosis, active	6
Post-lobectomy	1
Rib fracture	1
Pulmonary cyst	1
Hilar gland enlargement	5

READINGS NOTED, NOT DISQUALIFYING —
Camp Shelby, Mississippi

Pleurisy, mild	720
Increased hilar markings	278
Enlarged heart, mild	167
Shotgun pellets in chest	240
Spinal deformities, moderate	216
Rib fractures, with callus	41
Rib resection, old, well healed	59
Azygos lobe, pronounced	15
Deformity of clavicle	13
Dextrocardia	33
Dextrocardia, acquired	3
Absence of pectoralis major muscle	3
Emphysema, moderate	3
Deformity of scapula, congenital	1
Hypertrophied nipples	1
Eccentric position of great vessels, marked	3
Calcium deposits in aorta, marked	1
Foreign bodies in chest wall	7

In summary:

First—mass x-ray surveys are excellent case-finding methods of discovering early treatable cases of tuberculosis to be used along with other tuberculosis control procedures.

Second—the sick and ailing are excellent material for case-finding surveys, and this includes new patients appearing in the doctor's office.

Third—although the chief use of x-ray surveys is tuberculosis case-finding, many other pathologies and abnormalities will also be discovered.

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The Psychiatrist's Role At The Illinois Children's Hospital School

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Child psychiatry is a very young profession. Rubinstein[1] after reviewing the literature prior to 1900 remarks that this specialty "as a branch of the broader discipline, has developed only within the last 40 years." Another author, Kanner[2], pointed out that before the beginning of the 20th century there was nothing which could be regarded as child psychiatry. This field as an active part of medical practice has, however, developed rapidly in the last twenty or twenty-five years. While William Healey did the primary work in juvenile delinquency and pointed the way to the development of child guidance clinics, it was not until the Commonwealth Fund financed and organized the experimental or demonstration clinics in the Twenties that the child guidance movement really took root.[3] When Anna Freud[4] published her first work in 1927, and other child psychoanalysts reported their work, the problem of emotional disabilities in children became more clear. In recent years child psychiatrists have been contributing to the fields of pediatrics and child welfare. At times they have felt omnipotent with their new knowledge while at other times they have realized their basic weaknesses.

The evolution of this discipline has been one of trial and error, of learning new techniques and new methods of study. The concept of child psychiatry was gradually formulated and still remains with the same attitude of considering the approach to children's problems as a total one. The child guidance clinic team has always been, and probably will continue to be, made up of at least three members: the child psychiatrist, the psychiatric case worker, and the child psychologist. With the skills evolved from this teamwork relationship child psychiatrists became increasingly helpful to workers in other fields. As a result, not only they themselves but others in the field of medicine and child welfare have pondered the problem of their function. Should the child psychiatrist remain in his clinic, his ivory tower as it were, to be approached by those who wish help, or should he go out beyond this area? For the good reason of lack of personnel — for the number of these physicians in this country is still far too few for the demands made upon them — and because of their uncertainty as to their own function, the average child psychiatrist has remained in his clinic to diagnose and treat those behavior problems which were brought to him. However, with the increasing confidence that professional experience gives to the physician, he is beginnig to work outside his clinic. By using his experience, training, and knowledge he now assists, as consultant, hospitals, schools, camps, orphanages, and other

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institutions which treat, teach, or care for children.

This broadening of the orbit of child psychiatry has resulted in a number of developments which have extended the understanding of, and the work with, children. The American Orthopsychiatric Association has for the past few years arranged to have at its annual meeting a number of reports on the residential care of children and the problems associated with this type of care. New departments for children have been developed such as the department of pediatric psychiatry at the New York Hospital established by Milton J. E. Senn[5]. Margaret Ribble[6] and others have made studies in the field of infant welfare with a view to understanding the basic personality development of the infant and young child. The psychoanalysts have been studying the multiple problems more intensively through the use of psychoanalytic techniques in the treatment of the child over a long period of time. Several schools of child psychiatry have developed sufficient flexibility in their concepts so that each has contributed to the thinking and techniques of the others.

The child psychiatrist appreciates the importance of understanding parents for he appreciates that the parent-child relationship is undoubtedly the most important factor in the child's development. His training, which is provided mainly in the child guidance clinic, includes training in adult psychiatry along with, or usually prior to, his work with children. He treats parents as well as children and knows that his understanding of children's problems enables him to deal more adequately and successfully with the parents who are anxious and concerned about their children's difficulties. He is constantly learning much from his other team members, the psychiatric case workers and the child psychologists. Psychiatric case workers have contributed immensely to the understanding of parent-child relationships and have done valuable research in child guidance clinics. The child psychologists have come a long way from the days of Binet and Simon and the early intelligence tests. The intelligence test today is understood as only a part of the study and appreciation of the child's problem and the clinical psychologist evaluates the test with an infinitely greater clinical background than did his predecessors of ten, twenty, or thirty years ago. Today he also has the further aid of projective tests such as the Rorschach and Thematic Apperception tests, as well as educational achievement tests to evaluate the child's learning difficulties.

The history of child psychiatry and the training requirements of the child psychiatrist in the teamwork setting must also be understood for the proper appreciation of his role as a consultant in a residential institution for children such as the Illinois Hospital School for crippled children. This school developed out of the thinking, plans, and hopes of the workers in the field of child welfare in the State of Illinois. They recognized that while the State had an unusually good program for crippled children it did not provide for the care of certain more handicapped children, and that it was necessary to develop a hospital-school which could attack the problem of the educable physically handicapped child who was considered untreatable in other agencies. The State of Illinois, at the 64th General Assembly, through the enactment of House Bill 412, set up the Illinois Children's Hospital-School which was authorized "to provide for the establishment and maintenance of services and facilities for severely handicapped children." This Act directs the Department of Public Welfare to "establish and maintain services and facilities, including a hospital school, for the care and education of the physically handicapped, but educable children, and provide in connection therewith nursing and mental care and academic and related training to such children." According to the prospectus of the school, "The institution will endeavor to provide, through its own staff and the co-operation of other public and private agencies, the services of a combined hospital-school and home intended for the child who is educable but so severely physically handicapped as a result of cerebral palsy, muscular dystrophy, spina bifida, or other severely handicapping conditions that he is unable to take advantage of the system of free education in Illinois. Within the institution professional services will be rendered upon a departmental basis through a pediatrician as medical director, a director of nursing and physical therapy,

directors of education, occupational therapy and social service, a psychologist, and a dietitian." The Hospital-School was designed to provide restorative treatment and educational facilities on a twenty-four hour residential basis for selected children on a long term plan. It was set up for children whose educational and physical needs could not be met through available facilities. It was also emphasized that the Hospital-School would not duplicate the work of any existing services — medical, surgical, educational, or custodial. Ineligible for admission are the mentally defective, the acutely ill who suffer from such restricting conditions as cardiac ailments, tuberculosis, and acute poliomyelitis, those whose primary handicap is blindness, deafness, epilepsy, or chorea, orthopedic cripples whose need is for surgery, and children whose physical restoration appears to require only a short period of intensive treatment. It was fortunate for the Illinois Children's Hospital-School that a director was obtained who had had excellent training in social service administration as well as considerable experience in the administration of children's institutions.

The census of the school as of March 15th, 1948, includes the following conditions:

Number	*Diagnoses*
1	Acrocephaly with syndactilism
1	Amyotonia congenita
24	Cerebral palsy (2 with associated blindness 1 with associated deafness)
2	Chronic polyarthritis
1	Dermatomyositis
1	Dystonia musculorum
1	Friedreich's ataxia
2	Muscular dystrophy
1	Neurofibromatosis (Recklinghausen's disease)
2	Osteogenesis imperfecta
10	Paraplegia 3 spina bifida 4 traumatic 1 myelodysplasia 1 transverse myelitis 1 Pott's disease
9	Post-poliomyelitis
Total 55	

In order to fulfill the obligation inherent in the Act of the legislature, as well as to approach the children with problems, with all the methods available, the superintendent asked for a psychiatric consultant from the Institute for Juvenile Research. The writer was appointed to this position in the spring of 1947. It was realized from the beginning that the consulting psychiatrist could serve the School better as staff consultant or staff psychiatrist than as psychotherapist to the individual child. By the condensing technique of sitting down with the staff at a conference every two weeks for two hours, the psychiatrist has aided the staff in helping them to understand the emotional problems of the children in their care. It was agreed from the start that when a child needed intensive psychotherapy he could be referred to the Institute for Juvenile Research on a regular application basis. To date only one child has been referred to the Institute and this appears to be a reflection of the value of the consulting psychiatrist's contribution through the use of the staff conference technique. The writer feels that in this way the psychiatric consultant can be of help to more institutions and therefore to more children than he could by attempting to study and treat individual resident children. Admittedly, it would be better if a full-time, or even a half-time psychiatrist were available at the Hospital-School. However, with the acute shortage of child psychiatrists this staff consultation technique was evolved and seems to be working out effectively. It is hoped that this technique may prove effective in helping large numbers of children.

Only cases of children with moderately severe emotional problems are presented at the staff conference. Usually one case is discussed and it is generally the child who has been at the Hospital-School for about three to six months. This is informally termed the initial psychiatric conference on the child. It should be stated here that the psychiatric staff conference is only one of many meetings held by the staff for there are a number of consultants as well as many problems to be worked out. Attending the conference are all the members of the staff who can leave their duties. These include the professional staff, house parents, and nurses who have close relationships with the child. The case worker begins

the discussion with a summary of the child's development, giving the background material that is essential as well as parental attitudes and other case work and psychological data which she has gained from a full case work evaluation of the child and his family. Each member of the staff then presents his views on the progress of the child, his evaluation of the problem, and suggestions for the future. The psychiatrist then attempts to formulate the psychological problem by using the background material as given by the case worker and to evaluate the personality damages which have resulted from the organic injury, appreciating the manner in which the child handles the everyday situation as presented by the different staff members.

The psychiatrist with his skills can provide some understanding of the child's defenses which include the child's approach to adults and to other children. The psychiatrist must also attempt to understand which staff members are anxious, hostile, ambivalent, or have some other problem in relation to the child, as well as to understand their problems with other staff members. He consults with certain staff members such as the case worker or the psychologist in their individual case work or play therapy with disturbed children. He acts much like the doctor of physical medicine who co-ordinates all members of the team in viewing the child as a total problem rather than as a problem of one specialized field. It is important to realize that the attitude one must maintain in the problem of handicapped children is exactly the same as it is in the problem of illness in any field of medicine and that is that the approach must be one of totality rather than one of specialized interest alone, forgetting other approaches and sometimes the patient himself. The staff conference technique has been of considerable value to the psychiatrist himself as well as to the staff. It is not unusual to hear a staff member remark that he had not realized other people were having the same trouble as he was having with a particular child. These conferences, then, are of some relief to many staff members in so far as their personal difficulties hamper their work with the children. This conference is especially important for new members of the staff who often have certain feelings of inadequacy during their first few weeks in the institution. Relieved of these feelings, the new person is freed to continue his work with more ease and greater therapeutic courage.

The following case illustrates this procedure:

Case.—Joe was eleven years old when he was admitted on October 25th, 1946. He was accepted because he was too heavy to be carried out to the school bus and because his behavior made it difficult for his family to manage him at home. His physical restoration was considered complete at the time of admission. He had poliomyelitis at two years of age and was sent to a hospital for crippled children when he was six where he remained until he was eight years old. He was dismissed from this hospital because of his severe masturbation, soiling, wetting, sex practices with other boys, vile language, and lying. During the period of eight years to ten he was at a crippled children's home and was discharged from there because of his profane language, his disrespect for authority, and lack of consideration for the other children.

Joe has one sibling, a sister three years younger. His parents were divorced in 1946 after much quarreling and many separations. The family have not been too much interested in the boy and the mother has been alternately protective and rejecting. Joe had a normal birth and development except for some difficulty with toilet training which started at six months and was completed at one year. There was considerable rivalry with his younger sibling until recently. His physical diagnosis upon admission was post-polio paralysis involving the trunk, hip, and leg muscles which were practically powerless. His hands and arms were essentially normal. Joe weighed 164 pounds upon admission and was considered 92 pounds overweight. After about four months at the Hospital-School it was felt that he had begun to make some progress toward a better adjustment, but he still had many problems. He had become somewhat interested in the program, showed a need to be accepted, held onto adults, caressed them, and disliked sharing them with others. He wept easily. After being told that he had to lose at least 65 pounds, he became discouraged and refused to co-operate with this particular program. He was not accepted by the other children and often interfered with their activities. The social worker remarked, "He appears to be a handicapped child who has lost all desire to overcome his handicap." His attitude to the nurses was, "When do I get expelled from here?" The psychologist found him to be in the bright normal range. In school he was careless at first, but later seemed to mature somewhat and lost many of his cheating and childish habits.

At the staff meeting on March 11th, 1947, at which the psychiatrist was moderator, it was agreed that Joe was negativistic, obese, had a moderately severe handicap, violent mood swings, and little incentive for physical rehabilitation. At this time he felt rejected and found it difficult to form social relationships. He could not give to others and seemed to be quite selfcentered. It was suggested that he be allowed to develop gradually his need to be felt wanted at the school. Accordingly

a continued attitude of tolerance along with firmness seemed indicated as the therapeutic task. Since he should have an opportunity to express his feelings to one adult who could see him regularly, a case worker agreed to treat him on a case work basis. The pediatrician had tried different medications in order to limit Joe's appetite, but all these measures had failed. The psychiatrist therefore felt that all medication should be discontinued and that it would be more important for Joe to have a positive relationship with the pediatrician than for her to be in the position of the demanding adult. The teachers, physical therapist, and OT workers, all concurred in the idea that in order to help Joe, one member of each department attempt to be Joe's "therapist" in that particular department. The psychologist stressed the opinion that there was no evidence to indicate any severe block to Joe's intellectual and emotional development.

On March 4th, 1948, the case was discussed again. By this time Joe had lost 60 pounds and his braces were ready. He had in the meantime consented to an operation which at the time of the staff meeting had already been performed—arthrodesis of the ankle. This was directly the result of his change of attitude, for he had refused surgery for many months after admission. Later, particularly after the case work treatment, he had asked for this surgery. He was now eager to attempt to walk and he became one of the most conscientious diet children on the ward. Another case worker had been seeing the mother and as a result of this treatment the mother's attitude had improved and she was visiting the School regularly. As might be expected, Joe has maintained a constructive relationship with his case worker. He now gets along better with the other children as well as with adults. He still has moody and negativisitic attacks, but these are much less frequent.

Periodically, instead of the one case type of conference, three or four cases are presented for review, progress reports, further suggestions, and reformulations as they require. It is possible to give this thorough consideration of cases at the Hospital-School because the admission rate is necessarily slow and the total capacity of the institution, when completed, will be approximately ninety children. The turnover will probably be very slow because of the long term of treatment. At each visit to the school the psychiatrist also attempts to spend some time with staff members who wish to discuss with him their professional problems. In addition, he acts in a teaching capacity by discussing with the house parents some of the problems of the children in their care and the methods by which these problems can be handled. He takes part in panel discussions of various aspects of the problems seen at the Hospital-School, viewing the problems from the orientation of his speciality. He makes suggestions for research and is occasionally called upon for advice regarding general policy. In order to justify a professional staff so diversified, so skilled and efficiently trained, and the expenditure of the money required to maintain this type of institution, research becomes a vital part of the program.

It is not the purpose of this paper to present a complete resume of the problems with which the Hospital-School has to deal. In a paper entitled, "The Management of the Emotional Problems of Crippled Children in a New Type of Institution," to be published in the Journal of the American Orthopsychiatric Association, the writer has elaborated upon a few of the problems that need study.

The psychiatrist is able to bring to a Hospital-School the techniques used in the diagnosis and treatment of psychologically disturbed children, techniques which include a full understanding of total staff responsibility. These are methods which are inherent in modern residential schools for the treatment of such children and have been generally followed by the staff of the Illinois Hospital-School. By staff responsibility is meant considering the staff as a total working team with each member as important as any other in his relationship to the children. Every employee is potentially a parent substitute to the child and it is for this reason that the psychiatrist emphasizes to the staff the necessity for total staff integration and responsibility. The psychiatrist's function in such a school consists in the main in attempting to understand the children's emotional problems and the inter-relationships of children and staff. In this capacity the psychiatrist hopes to contribute some portion of the total therapy necessary in the treatment of crippled children.

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Preliminary Report on Proposed Program for Visual Screening of School Children in Illinois

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The Illinois Society for the Prevention of Blindness, a voluntary health agency, has long been interested in school vision screening programs. During the days of the depression, the Illinois Society for the Prevention of Blindness harnessed the enormous manpower of the W.P.A. to carry on vision screening programs in Illinois schools. Carefully selected lay persons were trained and supervised to screen, with the use of the Snellen chart, 1,870,000 children during a five-year period. Ten per cent of these children were found to be in need of further eye care, and at least 82,000 of that 10 per cent received further attention for their eyes.

About two years ago, under the sponsorship of the Chicago Ophthalmological Society, the Illinois Society for the Prevention of Blindness began a trial demonstration with the use of the Massachusetts Vision Test, to determine its effectiveness for use in Illinois schools. The Society found this method very satisfactory and practical. The equipment itself can be purchased at little expense by the school, and lay persons can be trained to be technicians in a matter of a few hours. This particular method picks up more children with eye difficulties than did the use of the Snellen chart. It is also important that this screening method, while picking up more of the children with eye difficulties, does not result in a large number of over-referrals.

The Illinois Society found school authorities interested and cooperative in wanting to do something about establishing vision screening programs as a regular part of the school program. However, there were really three groups who were offering expert advice on screening programs — the Illinois Society for the Prevention of Blindness, the medical, and the optometric. In some schools very bad situations developed and it was clearly evident that there could be no hope of a unified school vision screening program unless one could be developed which would have the support of both the medical ophthalmologists and the optometrists.

In the summer of 1948, after having determined that optometry could constructively participate in this kind of program, the Illinois Society for the Prevention of Blindness appointed a joint committee of medical ophthalmologists and optometrists to draft a school vision screening program to be used throughout Illinois schools. Two ophthalmologists and two optometrists were invited to serve, with full knowledge of their responsibilities. The ophthalmologists are Walter Stevenson, M.D., Quincy, President-elect of the Illinois State Medical Society, and J. R. Fitzgerald, M.D., Chicago, Secretary of the Chicago Ophthalmological Society. The optometrists are James Wahl, O.D., Anna, President of the Illinois Optometric Association, and Glenn H. Moore, O.D., Chicago, Secretary of the Illinois Optometric Association. This committee was given full responsibility for deciding method and policy, and will continue supervision of the program as carried out by the Illinois Society for the Prevention of Blindness.

Perhaps the most important part of this recommended school vision screening program is that there has been established a standard by which optometrists participating in the school vision screening program have agreed to refer certain children for further consultation to a medical ophthalmologist *if such consultation is reasonably available.* This standard provides

Prepared at the suggestion of Dr. Walter Stevenson and submitted with his approval.

that there shall be such referrals by the optometrists to the medical ophthalmologists if there is:

1. Corrected visual acuity of less than 20/30 in either eye.
2. Any obvious or questionable pathological alteration of the eye or its adenexa.

It has further been suggested that it would be well to have such referrals in "any case failing to measure up to 20/20 in either eye". The committee further recommends that the medical ophthalmologist should send to the referring optometrist a complete report of his findings, as well as to refer the case back for whatever optometric service can be rendered.

The complete recommendations of the joint committee on school vision screening have been accepted by the Illinois Optometric Association at its annual meeting on February 6, 1949, and by the Chicago Ophthalmological Society at its regular monthly meeting on February 21, 1949. The Illinois Optometric Association has appointed a certifying board to determine those optometrists who are willing to and can qualify for participation in the school vision screening program.

The Illinois Society for the Prevention of Blindness has committed itself to an extended service of establishing school vision screening programs throughout Illinois. The extent and speed with which the Illinois Society for the Prevention of Blindness can work is, of course, directly related to the additional funds which it can raise for this important program.

Without a doubt, school vision screening surveys, which should be carried on annually, can never be accomplished unless properly trained lay technicians can do the job as a regular part of the school program. The work of the Illinois Society for the Prevention of Blindness represents a new achievement in laying the foundation for a unified vision screening program, and one which has everything in its favor for success. For the first time, children in Illinois can be assured of coordinated effort to get them the best of eye care.

Following is a complete report of the committee's recommendations to date for a school vision screening program in Illinois:

1. The Massachusetts Vision Test is the method of choice for vision screening in Illinois elementary and high schools.
2. Screening should be done by properly qualified lay personnel. Ideally, it should be done by the teachers in the school, or it could be done by volunteers such as members of the P.T.A.
3. Screening should be conducted annually. Ideally it should be carried on at the beginning and end of the school year.
4. There shall be mandatory referrals by the optometrist to ophthalmologists if such consultation is reasonably available:
   1. If there is corrected visual acuity of less than 20/30 in either eye.
   2. If there is any obvious or questionable pathological alteration of the eye or its adenexa.

   It is further recommended that there may be such referral in:
   1. Any case failing to measure up to 20/20 in either eye.
5. The ophthalmologist should send to the referring optometrist a complete report of his findings as well as refer the case back for whatever optometric service can be rendered.
6. The vision screening technician shall screen all children wearing glasses with their glasses on. Any of these who fail the screening test shall not be given a notice to see their eye

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Uncorrected Visual Acuity	Refracted	Corrected Visual Acuity
R.V. _____	R. _____	R.V. _____
L.V. _____	L. _____	L.V. _____
Medical attention is advised	Yes _____ No _____	
Glasses prescribed	Yes _____ No _____	(Please check)
Are orthoptics recommended	Yes _____ No _____	

Remarks:

Name of child _____ Age _____ Grade _____ Sex _____

Doctor's Signature _____

specialist. Instead it shall be the responsibility of the public health nurse to get in touch with the child's specialist, advise him of the screening result and find out if the specialist wishes the child to return for further attention at this time. If this is desirable, the child shall be given a note advising him or the parents that an appointment to see his eye specialist is in order. The notice should not read that the child has failed the school vision screening survey.

7. There shall be no report on children who pass the screening procedure.
8. Report to parents: "A limited visual survey made of ..... indicates the need of a complete eye examination. Please take care of this at once." Signature should be that of the school principal or similar constituted authority.

Report for eye specialist to complete shall carry the notation to parents:

"It is requested you return this card to the principal after your doctor has completed it."

Extrarenal Azotemia and Lower Nephron Syndrome

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The lower nephron syndrome is a syndrome of diverse etiology, affecting essentially the cells of the tubules of the kidney, and especially those of the ascending loop of Henle and the distal convoluted tubules. Pathogenetically, the common factor is probably anoxia. The clinical picture depends on the degree of anoxia and the period of its duration, and is characterized by oligurea, often characteristic urine findings and azotemia, probably due to a non-specific reabsorption of the glomerular filtrate by damaged tubular epithelium.

The question of terminology for these varied states has received consideration. According to Bell[1], and others, a differentiation is made between a "true" extrarenal azotemia and the lower nephron syndrome. According to Lucké[2], a re-evaluation of the kidney findings in cases of extrarenal azotemia would show the recently described renal changes in most cases. Nor is it sure that the negative findings in some cases of extrarenal azotemia may not be due to very early changes which are not apparent by our methods of study. For purposes of this paper, it will be considered that extrarenal azotemia and lower nephron syndrome are synonymous.

Historically, the picture was described separately for many conditions and by many authors. Such terms as acute Bright's disease, acute parenchymatous nephritis, acute tubular nephritis were used. When modern classifications of kidney disease were proposed, this entity was dropped and its significance generally forgotten. Kidney lesions were described in such disparate conditions as burns, hemoglobinurea, shock, acute infections, etc., as far back as 1823[3], but it was not until Jeghers and Bakst, in 1937[4], categorized our knowledge, described the basic mechanisms, and emphasized the comparatively minor pathology in the kidney under the term *extrarenal azotemia*, that the picture rounded into a definite pathologic and clinical syndrome. The syndrome was most lately and most completely described by Lucké[2], in 1946, who stressed

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especially the pathology. The importance of this syndrome and its application to present day clinical medicine remains to be emphasized, and this indeed is the purpose of this paper.

The lower nephron syndrome has been described in a multitude of clinical states, which cover the field of medicine in all its specialties. It concerns the dermatologist as well as the surgeon, the physical therapist as well as the internist. There seems to be no diseased state in which the syndrome may not occur. Its role may have to be assessed even in experimental and investigative medicine, as coloring certain results and findings. The condition, in varying degree, is ubiquitous in medicine.

Beside the organic lesions of nephritis, nephrosis, nephrosclerosis, post-renal blocks and structural anomalies of the kidney, renal lesions have been described in shock of all kinds, in peripheral vascular collapse[5], in severe trauma to muscles (crush syndrome)[6], in non-traumatic muscular ischemia[4], in hemoglobinureas of varying etiology[7], in hemorrhage[5], burns[8], heat strokes and heat exhaustion[9], in utero-placental damage[10], allergies, histamine intoxications[11], sulfonamide intoxications[12], in acidosis, alkalosis, dehydration states, in excess vomiting and diarrheas, in diffuse hepato-cellular damage, (hepatorenal syndrome), in conditions of excess protein catabolism, in vascular occlusions[4], intestinal strangulation, obstruction, perforation and fistulae, in peritonitis[5], in radiation and sunburn[13], in freezing, extensive surgical intervention, diabetic coma, Addison's disease, acute pancreatitis, cerebral lesions, thyroid crises, reflex anureas[4], etc. This list is certainly not complete but serves to demonstrate the ubiquity of the syndrome, and the need of watchfulness for its occurrence.

A common denominator in such diverse conditions is difficult of determination, and probably non-existent. However, certain mechanisms play an etiologic role so frequently that they may be considered fundamental. It should be understood that rarely is only one mechanism operative. More often, as will be later elucidated, a combination of mechanisms occurs. The sequence of their appearance, their intensity and their duration is of importance. A thorough knowledge of these factors in the pathologic physiology, and an awareness of their possible occurrence in disease states will often, by means of our ever increasing therapeutic armamentarium, prevent death. Early, the lower nephron syndrome is reversible. Later, the mortality rate is close to total.

The most commonly met mechanisms, alone or in combination are: 1—shock, 2—hemoglobinureas, 3—hemorrhage, 4—liver damage, 5—physico-chemical alterations in the blood, leading to acidosis, alkalosis, and dehydration, 6—increase in protein catabolism, 7—local renal disturbances.

1. *Shock.*—Kidney lesions and the clinical picture of the lower nephron syndrome have been described in shock notably by Moon and his associates. The kidney lesion will be described later. Suffice it to say now that the lesions are present mainly in the tubules which show varying degrees of degeneration of their cells, from cloudy swelling to complete destruction[13]. The pathogenesis of the lesion may now be discussed.

Several theories have been maintained. It has been suggested that the hypotension present in shock reduces the effective filtration pressure in the glomeruli and diminishes peritubular circulation, with resultant anoxia. It has been shown that in shock, when circulating blood volume is reduced to ½ of normal, kidney circulation may be reduced to 1/10th, 1/20th or even less[14]. The role of anoxia is here apparent.

Nephrotoxic substances arising from injured tissue have also been implicated. These substances may injure the kidney during their excretion. Many substances have been mentioned, but the particular agent is unknown. Adenosine triphosphate has been isolated from ischemic muscle and has been shown to be nephrotoxic. Other nephrotoxic substances have been isolated in blood returning from ischemic muscles, but cannot be isolated from normal muscles[15]. Corcoran and Page have demonstrated a renal vasoconstrictor present in the plasma of shocked animals and humans[16].

An increase in viscosity of the blood (hemoconcentration) is another probable factor in the production of oligurea in shock[4]. It limits the fluid available for excretory functions, increases protein catabolism, diminishes flow through the kidney and increases colloid osmotic pressure in the blood, thereby hindering filtration.

2. *Hemoglobinureas.*—These conditions, following intravascular hemolysis after transfusions, black water fever, paroxysmal hemoglobinureas etc., and myohemoglobinureas occurring in the crush syndrome, present a rather special problem. The crush syndrome first mentioned in the German literature after World War I, was rediscovered by Bywaters in crush victims during the London blitz in World War II. The mechanism whereby these conditions produce oligurea and azotemia is not entirely clear. It is true that in these conditions especially (but in other conditions initiating the lower nephron syndrome as well) there are precipitated in the lower nephron pigmented casts which block the tubules[17]. At one time it was considered that this caused the oligurea. It has been shown, however, that in most cases only 20% of the tubules are plugged. 80% of kidney tissue can normally carry on, however. It has also been demonstrated that it is improbable that hemoglobin or myoglobin casts would be precipitated unless there were previously damage to the tubule. Corcoran and Page state that oligurea and acidurea are necessary forerunners of hemoglobin precipitation in the renal tubule[16]. It has been shown, however, that products of hemoglobin degradation have an intense renal vasoconstrictive effect[18].

It seems then that hemoglobinurea or myohemoglobinurea alone do not produce the lower nephron syndrome. Other factors present often are shock and anemia which damage the tubule. To this damage, hemo- or myohemoglobin, or their degradation products add further insult.

3. *Hemorrhage.*—Hemorrhage produces its effects in the kidney by many of the mechanisms concerned in shock — hypotension, decreased circulation through the kidney and by secondary shock itself. Basically, the mechanism again seems to be anoxia, either by itself or in combination with other factors. In gastro-intestinal hemorrhage, there may be the superadded factor of the digestion of massive amounts of blood, with resulting increase in the blood of protein derivatives which a damaged kidney cannot immediately excrete.

4. *Liver damage.*—Increase in N.P.N. of the blood has often been described in diffuse hepatocellular damage. The liver is the site of the deaminization of amino acids, and the production of urea. It has been shown that the increase in N.P.N. often is due to a rise in amino-acids, rather than in urea nitrogen. In some cases decrease and even absence of urea N has been demonstrated[4]. It may be that a differentiation between the azotemia of the lower nephron syndrome in hepatic damage and that due to a failure of deaminization can be made by studying the partition of the N.P.N. into amino-acid and urea N. The factors of dehydration, hypotension, etc., in cases of severe hepatic damage have not been sufficiently stressed in the literature of the hepato-renal syndrome.

5. *Physico-chemical alterations in the blood.*—Such changes are found in many of the conditions associated with the lower nephron syndrome, as well as those associated with so-called extrarenal syndrome. The exact mechanism whereby these alterations cause renal damage is conjectural. It has been shown that hypochloremia per se has little renal effect, but that the oft concommitant dehydration is a factor. Hyponatremia on the other hand produces a diminished blood volume, and is therefore causative, again by means of dehydration[4]. Acid metabolites, such as lactate and phosphate from the destruction of tissues cause a decrease in alkali reserve, dehydration and an acid urine[16]. Lately, the role of excess potassium, which may be toxic to the kidney, has been discussed. It should be remembered that K, in excess amounts, is released whenever large numbers of cells are destroyed. In severe dehydration, when intra-cellular fluids as well as extracellular fluids are drawn into the serum (as in diabetic acidosis), serum K also rises and may be a factor in renal and other damage[19].

6. *Increase in Protein Catabolism.*—Increased protein catabolism is readily apparent in such conditions as destruction of muscle masses, absorption of hemorrhage and exudates, and large necrotic areas, burns, etc. Azotemia here depends upon the inability of the kidney to eliminate nitrogen wastes. This inability is augmented by other factors which decrease renal function as mentioned above, and in burns especially by intra-vascular hemolysis and shock.

Less apparent is the increase in protein catabolism produced by dehydration per se, by septic inflammations such as pleurisy, pneumonia, peritonitis, severe surgical trauma, tissue injury in allergic states, starvation, hyperthyroidism,

fever and certain drug intoxications and sensitivities.

All of these factors are by themselves incapable of producing a significant degree of nitrogenous retention. They are, however, contributory; and interrelated with other mechanisms initiating the lower nephron syndrome.

7. *Local Renal Disturbances.*—It is evident that the vascular system of the kidney and even the tubules themselves are under the control of nervous and humoral factors. The role of reflex anurea from stimulation of the splanchnics is still not completely understood. Reflex anurea in the well kidney from pathology in the other diseased kidney is of relatively common occurrence. Reflex anurea from operations distant from the genitourinary tract may occur, as well as hysteric anureas and anureas following cerebral lesions.

The adrenal cortical hormones affect, by action on the tubules, sodium excretion and perhaps also urea excretion. The posterior pituitary hormone increases reabsorption of water by the tubule. Thyroxine is antagonistic to the posterior pituitary in this instance. The parathyroid hormone lowers the renal threshold for phosphate. The possible role of these factors in the lower nephron syndrome needs further investigation[20].

Another local mechanism, of some import, to be mentioned, is venous stasis in the kidney, from heart failure.

In a review of these basic mechanisms, it seems to me that the ultimate factor is probably anoxia, whether from vasoconstriction hypotension, or other more basic mechanism.

Pathology.—There is a need for categorization of our knowledge of the pathology of extrarenal azotemia and/or the lower nephron syndrome. In a review of the pathology as described in studies by various authors, Moon confirms the following pathologic picture[13].

Grossly, the kidneys are normal in size or moderately enlarged and edematous. The capsule strips easily, the stellate veins in the cortex are engorged. The color varies depending upon the degrees of hyperemia and parenchymatous change. Hemorrhagic streaks are seen in the medulla and the cortical markings are obscured. Petechiae may be seen in the parenchyma and in the pelvic lining.

Microscopically, Moon states, there are varying degrees of changes within a regular pattern. He describes hyperemia of the glomerular tufts and of the intertubular vessels and sometimes capillary hemorrhage. Amorphous material is seen in the capsular spaces. He describes degenerative changes in the convoluted tubules ranging from cloudy swelling to necrosis. He locates the changes as being "usually more pronounced in the upper segment, sometimes in the lower, but in general all portions of the convoluted tubules are affected." He describes hyaline, granular and often (but almost always in hemoglobinurea and burns) pigmented casts in the lower nephron. Debris, red cells and desquamated epithelial cells are present in the collecting tubules. The amount of edema varies.

Martineau and Hartman[8] describe very much the same picture in 20 cases of human burns. They locate the pathology in the proximal convolution and the ascending thick segment of Henle's loop. They also describe vacuolar and hydropic degeneration, and necrosis in the collecting tubules.

Corcoran and Page[16] describe hydronephrosis of nephrons and groups of nephrons due to casts. This condition is present in an insufficient number of nephrons to cause the clinical oligurea.

Bell and Knutson[1] differentiate a true extrarenal azotemia from an azotemia due to tubular injury. They describe cases of azotemia in dehydration states, in postoperative cases and in conditions of hypotension of which only 23% showed tubular damage on post-mortem examination. The cases in this study were all preterminal. Bell and Knutson admit that functional lesions may occur which are not microscopically demonstrable.

According to Lucké[2], the lesions in all cases are "essentially the same, degeneration, often necrosis, limited to the distal segments of the tubules, with brown casts of some heme compound in the distal segments and collecting tubules." In all cases described by Lucké, the pathology was described as minimal or nonexistent in the glomeruli, proximal convoluted tubules and intermediate segments. Lucké quotes references for such selective damage in the reported pathology in crush injury, burns, incompatible blood transfusions, in utero-placental damage, in sulfonamide intoxication and after excess vomiting. In these cases, at least,

the lower nephron syndrome is a correct appellation.

Mallory[21] concurs (in his examination of 60 cases of battle casualties, and a survey of 200 similar cases) with Lucké in the localization of the lesion, and adds that in his opinion dilatation of the proximal segments on microscopic section are artefacts in that in Zenker fixed material, in contradistinction to formalin fixed tissue, this is not seen.

Malamud[9], et al, in a study of renal lesions in fatal heat stroke, also concur with Lucké in the localization of the pathology to the distal segment.

I have tried in this review of the pathology to show the major points of disagreement.

Clinical Picture.—The symptoms of the lower nephron syndrome are always superadded to those of the initiating disease. The chief features seem to be fatigue, drowsiness progressing into stupor, and coma. The usual clinical manifestations of renal uremia such as dehydration, anemia, pallor, pericarditis, diarrhea, are rarely seen, probably because of the short duration of the disease. Muscular twitchings were present in one case, and uremic frost in another of Jeghers and Bakst. Vomiting is frequent according to Lucké. Convulsions are uncommon.

Oligurea is of constant occurrence, and often proceeds to anurea. The oligurea is usually noted in the first 24 hours, and persists despite a large intake of fluids and other measures to restore elimination. Urine output is usually less than 500 c.c. daily.

The urine is dark, sometimes smoky or frankly bloody, contains albumin, hemoglobin, debris, erythrocytes or shadow cells, hyaline, pigmented and granular casts even when there has been no known hemolysis.

The hemoglobinurea is usually transitory, lasting only one or two days. The albuminurea, however, usually persists through the disease and maybe longer.

The specific gravity of the urine has been variously described. Lucké[2] states it to be low. However, many case reports show a high specific gravity. Mallory believes a fixed specific gravity is of high diagnostic import[21].

The mechanism of oligurea has been variously ascribed. That it is not due to tubular blockage is now generally agreed. A decreased renal circulation at a lowered pressure, does play a part, but cases have been described where no such mechanics were operative. It is now considered that the chief cause of oligurea is an almost complete and non-selective reabsorption of the glomerular filtrate by the damaged tubule[22]. Actual visual observation of the nephron of a frog, whose tubules were poisoned with bichloride of mercury, showed active and even increased glomerular filtration in the presence of anurea. Rupture of damaged tubules may aid in the process[23].

The blood shows in all cases a rapid rise in N.P.N., and by the third day, the N.P.N. may exceed 150 mg.%. Urea N usually rises proportionately, except, as previously mentioned, in certain cases of hepato-cellular necrosis. The creatinine usually rises in proportion, but I have seen cases of extrarenal azotemia where the creatinine remains low. Bell[1] states differentiation of renal from non-renal azotemia by creatinine determination is of no value.

In some cases a high potassium and phosphate level in the blood has been reported, as has also a decrease in alkali reserve.

The physical findings consist of some slight to moderate edema. Acute pulmonary edema may arise and is of grave import. Edema of the face is uncommon.

Hypertension is one of the cardinal signs of lower nephron syndrome according to Lucké[2] and to Mallory[21]. After shock, the blood pressure rises to 150/90 or higher and is maintained during the disease.

Mortality Rate.—The mortality rate, once the condition is well established, is inordinately high. Lucké[2] reports a 90% mortality rate, 74% of these cases dying in the first eight days. The mortality rate in crush syndrome as reported by Bauer is also 90%. The course is usually brief (3-10 days) in fatal transfusions.

Treatment.—The treatment for the lower nephron syndrome should be as far as possible prophylactic. This means prompt and adequate therapy of shock, hemorrhage, electrolyte imbalance, whenever these may and do occur. Blood matching must utilize all the newer knowledge of subgroups and the various RH. factors. The treatment of diffuse liver damage and Addison's disease has been well elaborated and needs no discussion here. Alleviation of intestinal obstruction before electrolyte shifts, the immediate

and adequate therapy of burns to prevent loss of protein, and the constant attention to urine output, urinalysis, and blood chemistry, may bring earlier diagnosis and more successful treatment.

Once tubular damage has occurred, possible reversibility must be considered, and immediate attention given to the azotemia.

Specific etiologic factors in the lower nephron syndrome may require special treatment.

In the crush syndrome, Corcoran and Page[16] suggest immediate bandaging of the limb to prevent sudden overwhelming absorption of toxic products. They also recommend the immediate use of intravenous diuretics such as 5-10 grams of sucrose, or 1 gram of sodium sulfate, together with 1-2 liters of sixth molar lactate solution.

Alkalinization has been recommended where myo- or hemoglobinurea are expected, but dangers of excess alkalinization after kidney damage have been stressed by English writers studying blackwater fever[25].

Renal decapsulation has been suggested, and decried by various authors. It is not clear that, in a possibly reversible condition such as lower nephron syndrome, decapsulation is always responsible for reported improvement.

Cases of relief by splanchnic block, high spinal or caudal anaesthesia have been reported [26, 27]. A physiologic basis for such therapy is provided by the work of Franklin and his colleagues in England[28].

New hope has risen from the use of peritoneal lavage[29] in which for a time, the peritoneum is made to act as a dialyzing membrane to remove nitrogenous wastes, giving the tubules time to regenerate.

Another method of temporizing until repair may occur consists of diluting the toxic products in the blood by adding 1-2 liters of salt solution to other intravenous therapy in order to produce edema. This is necessarily a dangerous procedure for fear of pulmonary edema, and a careful and constant check on the lung must be done[30].

SUMMARY

The etiology, pathogenesis, pathologic physiology, clinical manifestations and therapy of the lower nephron syndrome have been presented. It is hoped that with sufficient emphasis to physicians in all fields of medicine, the syndrome will be expected in various disease states, earlier recognized and earlier treated, in order that prevention or reversal of an otherwise highly fatal syndrome be accomplished.

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The Incidence of Intestinal Parasitic Infections in a Chicago Dispensary

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One working in the out-patient, gastro-intestinal dispensary of any medical school is always confronted with a large number of patients who return year after year with many complaints which seem difficult to overcome. These consist mainly of such vague general symptoms as chronic fatigue, lack of drive or ambition, indolence, fullness or discomfort under the left costal margin accompanied at times by palpitation, a sense of being unable to get enough breath, dull headache, inability to concentrate, poor memory, dull ache in the buttocks or thighs, and heavy tired legs. Also more definite gastro-intestinal complaints as poor appetite, nausea, a sense of fullness before much food is taken, belching, flatus, borborygmus, dull discomfort in the appendiceal area and secondly in the sigmoid area, food intolerances, occasional lower abdominal cramps with one or two loose stools but very often an obstinate constipation, vague rectal distress including pruritus and a sense of the rectum not being adequately evacuated.

The desire to find a way to make these patients self-sufficient, prompted us to make a search for types of infection which might sap one's vitality, other than those which are uncovered in the usual laboratory and physical examination. The belief that the incidence of protozoan and helminth intestinal infection is higher in dispensary patients than is usually recorded, decided us in 1941 and 1942 to study 634 stool specimens from 296 patients in the grastro-intestinal clinic of the Central Free Dispensary of Presbyterian Hospital. Among statistical studies reported on the incidence of amoebiasis in this area are Hood[1], Spector[2], Rodaniche and Palmer[3], Bundesen, Tenney, and Rawlings[4], Bundesen[5], and Tenney[2], and of intestinal parisitism in general in university students by Headlee[7,8,9,10], and Kmecza[11] in Longcliff State Hospital of Indiana. The conditions under which these studies were made differ from our own, in that our patients came from the gastro-intestinal clinic where the incidence should necessarily be higher than in the general population, since all of these patients were seeking relief from some type of abdominal discomfort or other symptoms referable to the intestinal tract.

Material and Methods. — In order to test our own efficiency with some of the methods ordinarily used in diagnosis, it was decided to use (a) direct smear with normal saline for trophozoites and precysts, and also D'Antoni's iodine for precysts and early cysts, (b) the centrifugation

zinc sulphate flotation method of Faust for cysts, and ova of other parasites, and (c) the stool culture using Cleveland and Collier media. The type of patient and the facilities of the dispensary made impracticable any attempt to have the patients pass stools at the dispensary for examination of fresh, warm stools. No attempt has been made to determine the relative efficiency of one stool examination, two stool examinations, three stool examinations, etc., as Faust and Sawitz[12] and Sawitz and Hammerstrom[13] have so ably shown that the examination of ten to twelve stools with direct smear, hematoxylin stain, and centrifugal zinc sulphate flotation yielded an efficiency of only seventy to ninety percent even when normally passed stools, stools obtained with saline purging, and material obtained by proctoscopic examination after three large saline enemas were all used. Not more than three stools from any patient were examined and if the first stool was positive for Endameba histolytica, no more stools were examined. It is admitted that our studies obviously did not reveal the total number of parasites and protozoa present because (a) the number of stools studied per person was inadequate, (b) all were normally passed, cold stools, (c) no proctoscopic studies were correlated, (d) none of the stools were obtained by saline purges which brings material direct from the cecum where the incidence of Endameba histolytica is greatest, (e) no saline enemas were given to bring mucus direct from the cecum, (f) no animal inoculations were done, and (g) no complement fixation tests were done for Endameba histolytica. Therefore, this represents merely the efficiency of the laboratory examination of one to three stools as a diagnostic procedure.

Results. — The results of our series were as follows:

296 Patients Examined

Parasites	*No. Pts. Positive*	*Percentage of No. Exam.*
Endameba histolytica	35	11.8
Endameba coli	49	16.5
Endolimax nana	36	11.9
Diendameba fragilis	12	4.1
Iodameba buetschlii	2	0.7
Giardia lamblia	12	4.1
Trichomonas hominis	10	3.4
Enterobius vermicularis	3	1.0
Oxyuris incognita	4	1.3
Hymenolopis nana	1	0.3
Trichocephalus trichyuris	1	0.3
Tenia saginata	2	0.7
Strongyloides	1	0.3

634 Stools Examined

Parasites	*Stools Positive*	*Percentage of No. Exam.*
Endameba histolytica	55	8.7
Endameba coli	79	12.5
Endolimax nana	62	9.8
Diendameba fragilis	15	2.4
Iodameba buetschlii	2	0.3
Giardia lamblia	21	3.3
Trichomonas hominis	14	2.2
Enterobius vermicularis	4	0.6
Oxyuris incognita	4	0.6
Hymenolopis nana	4	0.6
Trichocephalus trichyuris	1	0.16
Tenia saginata	2	0.3
Strongyloides	1	0.16

30 N. Michigan

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CASE REPORTS

Acute Infectious Polyneuritis (Guillain-Barre Syndrome)

Associated With Methemoglobinemia Possibly Due to Nitrates in Drinking Water

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Since 1892 when Osler first described a condition he designated as "acute febrile polyneuritis," much attention has been given at various times to diseases characterized by symmetrical paralysis of acute onset. When in 1916, Guillain, Barre and Strohl turned emphasis upon an albumino-cytological dissociation in these diseases, the concept of a distinct syndrome was developed. In 1936, Guillain presented his view that this syndrome had a specific neurotropic virus as its etiological factor, which would eventually be established through animal inoculation. However, it is still a question whether the symptoms may not be produced by various etiological agents. It is our intention here to report a case which presents the picture of a Guillain-Barre syndrome in combination with a methemoglobinemia.

Two weeks previous to admission, the patient returned from a seven day vacation in northern Wisconsin, where he drank well water and possibly unpasteurized milk purchased at the local grocers. On the way back to Chicago, he had 12 loose, watery stools unaccompanied by cramps or vomiting. He took some milk of magnesia and the condition subsided. The patient then felt well and returned to work for six days. The next day, one week before admission, he noticed tingling in his fingers and the bottom of his feet. In the next two days, he became very weak in his legs, especially the ankles, and found that they would give way under him when he

21 - 14 days before admission	1 week asymptomatic vacation. Drinking of well water and possibly unpasteurized milk
14 days before admission	12 loose watery stools
13 - 8 days before admission	Patient felt well; went to work
7 days before admission	Tingling in fingers and bottom of feet
6 days before admission	Weakness of legs, especially ankles
5 days before admission	Pain in low back region
5 days before admission to time of admission	Weakness and loss of control of hands. Thickened speech Difficult breathing

attempted to walk. He was now unable to get out of bed and developed pain low in his back. Further, in the five days before admission he lost control of his hands, his speech became thickened and he had difficulty breathing, but no difficulty swallowing. He had no tinnitus, vertigo, fever or chills.

SUMMARY

Inquiry into the patient's past history disclosed that he was employed as a porter in an office building for the past 1½ years. He had influenza at 24 years of age and malaria at 18. Three years ago, he was diagnosed as having tuberculosis and spent one year in a sanitarium. About six months ago, he had severe aching pain in his epigastrium and has been treated with powders since that time. He had no contact with arsenic or lead, did not smoke, drank alcohol only occasionally and took no drugs.

Physical examination upon admission revealed a well developed, well nourished white male 52 years of age, who spoke with difficulty and was breathing with the aid of his accessory abdominal muscles with no intercostal component. His temperature was 99, pulse 98, blood pressure 158/88 and respiration 16 per minute. His skin and nails were cyanotic. His pupils were round and regular and responded well to light and accommodation. His eye movements were normal and there was no nystagmus. The fundi showed normal cupping of the discs. There was no facial paralysis or deviation of the tongue. Examination of the neck disclosed no masses or glands. There were a few coarse rhonchi in the right chest posteriorly and bilateral apical rales. The heart was of normal size with the right heart border at the right edge of the sternum and the left heart border 2 cm. within the mid-clavicular line in the 5th interspace. The mechanism was sinus and there were no murmurs. The kidney, liver and spleen were not palpable. There was marked generalized weakness of all four extremities. Neurological examination revealed normal sensory appreciation of pin-prick, cotton and hot and cold. The deep reflexes were uniformly absent with no plantar response at all. The abdominal reflexes were absent and there were no pathological reflexes. Proprioception was normal. Vibratory sense was somewhat diminished, 15 seconds in the arms and 10 seconds in the legs. There was a marked ataxia of both arms and legs. Tenderness to pressure on both calves was marked.

Urinalysis was negative. The leucocyte count was 14,700 with 75% polymorphonuclears, 24% lymphocytes and 1% eosinophils. The erythrocyte count was 5.53 million and the hemoglobin 18 grams. The color index was .95. Three lumbar punctures were performed. One on the day of admission, the second the 4th day of hospitalization and the third, the 10th day of hospitalization. The first revealed normal dynamics with an initial pressure of 21 mm. an excursion to 30 mm. upon jugular pressure and to 29 mm. with abdominal pressure. The cell count was 2 per cmm; the globulin negative; the chlorides 860 mgm and the sugar 93. A culture was taken which showed no growth on blood sugar after 48 hours. The second spinal fluid examination had 2 cells per cmm. There was a slightly positive pandy, a negative globulin but a total protein of 185 mgm%. The sugar was 107.5 mgm%. A culture again was taken and again there was no growth. The third spinal tap disclosed a cell count of 0 cells per cmm. The pandy was 2 plus, the globulin 1 plus and a total protein of 249. Spinal fluid Wasserman was negative. A blood Kahn was negative.

Blood chemistry determination showed a total protein of 8.20; albumin of 4.85 and globulin of 3.35 with an A/G ration of 1:14 — 1. A brucellosis agglutination was negative. The sedimentation rate was 21 mm. in one hour. A portable film of the chest revealed extensive bilateral infiltration into the upper thirds of the lung fields with calcified nodes in both hila and a well calcified Ghon complex in the left lung base. The appearance was most suggestive of advanced tuberculosis.

Immediately upon admission, O_2 through a nasal catheter was administered. During the first five days of hospitalization, he complained from time to time of mild aches in the legs; his temperature varied between 99-100°. On one occasion he did cough up blood tinged sputum, but ceased to cough after that time. On the fifth day of hospitalization the patient was started on 50,000 units of penicillin every three hours prophylactically. This penicillin was continued for eight days. During the first week in the hospital the only improvement noted was a diminution of the ataxia of the arms. His speech remained hesitating and slurred. However, on the ninth day after admission, it was noticed that the patient definitely had more power in his arms and legs and was able to inspire deeply with good intercostal expansion. Because the patient's cyanosis persisted out of proportion to the degree of respiratory difficulty, and in spite of continuous O_2, a methemoglobinemia was suspected. A methemoglobinemia determination was done and with spectroscopic examination showing a heavy absorption band in the methemoglobin zone. After 10 days of hospitalization while the patient was regaining some strength the mild aches in his legs persisted and he developed a definite left facial paresis. The cyanosis cleared considerably, he continued slowly to regain strength and his speech became fluent throughout the next 10 days, but at no time was he able to get out of bed or feed himself and the calf tenderness persisted. By the 20th day of hospitalization the left facial paresis had completely cleared. He was now given 1.0 mgm/kilogram of methelene blue in the form of a 1% solution. No marked results were noted. At this time stomach washings were done and acid fast studies made. No tuberculin bacilli were seen on smear and guinea pig inoculation later proved negative.

Upon admission a diagnosis of poly-neuritis of unknown etiology was made. A Drinker respirator was kept close at hand because of the absence of intercostal expansion. Lack of a history of contact with heavy metals or a vitamin deficient diet did not substantiate either factor as an etiological agent. Poliomyelitis was excluded because of the absence of meningeal irritation and lack of asymmetrical muscle spasm of segmental distribution with pleocytosis in the spinal fluid. Absence of localizing signs along with the normal dynamics of the spinal fluid and absense of xanthochromia did not suggest central nervous system tumor. Lues was excluded by a negative blood Kahn and spinal fluid Wasserman. While myxedema may exhibit an elevation of the spinal fluid protein without pleocytosis, there were no associated features of this disease. Similarly diabetic neuropathy may show an increase in the protein spinal fluid but in this case the urine showed ne reduction. On the fifth day after admission, the results of the second spinal puncture with an elevated total protein were obtained. The case was reviewed and a diagnosis of Guillain-Barre syndrome was made with the following points brought sharply in focus.

1. Parasthesia of the hands and feet
2. Symmetrical weakness of arms and legs
3. Intercostal paralysis
4. No objective sensory changes
5. Absent deep reflexes
6. No abdominal reflexes
7. No pathological reflexes
8. Low grade temperature
9. Normal dynamics in spinal fluid
10. Albumino-cystological dissociation in spinal fluid

The symptoms of ataxia and the subsequent transient facial paresis were also explained by this diagnosis. Guillain had remarked that "changes in deep sensibility may explain the ataxia that is sometimes present." The development of a left facial paresis recalled to mind the number of cases of polyneuritis in which difacial paresis had been reported with hyperalbuminosis of the spinal fluid. However, there was no preceding history of recent diphtheria or upper respiratory infection as sometimes precedes the onset of a Guillain-Barre Syndrome. While Guillain has remarked that "cases with hyperalbuminosis with an albuminoid content of from

0.3 to 0.4 gm. do not belong to the syndrome or must be regarded as instances of an abortive form," most investigators do not now subscribe to this view and, therefore, regard the level of 249 mg. in this case as adequate for diagnosis.

In view of the fact that the symptoms and signs of a Guillain-Barre Syndrome and a proven methemoglobinemia coexisted in a patient in which no other etiological factor could be found for the condition, we believe that relationship existed between the two in this case. Further, because of the patient's history of drinking large amounts of well water while vacationing it was assumed that the methemoglobinemia was possibly on the basis of a high nitrate intake. The toxic effects of a high nitrate water results from the reduction of a nitrate to a nitrite by bacterial action. The patient's diarrhea may be related to this process. Emergency treatment of methemoglobinemia consists in intravenous injection of 1.0 mgm. of methelene blue per kilogram of body weight in the form of a 1% solution. In our case the dye was injected late when the patient was well on the way to recovery and no dramatic results were expected or obtained. The fact that no other cases were reported from that vicinity, or in the patient's family who were vacationing with him might possibly be explained partly by the fact that the patient had far advanced pulmonary tuberculosis and was already in a debilitated condition and partly by his admission that he consumed much more water than other members of his family.

Methemoglobinemia on the basis of ingestion of water with high nitrate content was first reported from Iowa in 1945. Cases have now also been reported from Illinois, Kansas, Nebraska, Michigan, Oklahoma, Canada and Belgium. All the cases reported have been in infants and it was assumed that adults and children old enough to take a solid diet were not endangered by the presence of nitrates in drinking water. The cases reported have been from rural districts where water supplies are obtained from relatively shallow wells and toxic amounts of nitrates are present. We have presented the case of a 52 year old white man who after vacationing in Northern Wisconsin, where he drank excessive amounts of well water, developed a methemoglobinemia with the symptoms and signs of a Guillain-Barre Syndrome. However, the well water in the vicinity of Wisconsin in question was analyzed and found to contain 0.000 ppm nitrates. This analysis seemed to refute the theory of a nitrate etiology for the methemoglobinemia. It is accepted that water containing less than 10 parts/million nitrates is harmless; between 10-50 parts/million should not be used and over 50% water is hazardous and may produce methemoglobinemia with severe cyanosis. Since there was excessive rainfall between the time that the patient drank well water and the time that the analysis was made it is possible that much of the nitrate content was washed away.

We have established the presence of a methemoglobinemia in a case with a clinical picture of a Guillain-Barre syndrome. A nitrate etiology for the methemoglobinemia, while possible, had not been definitely proven.

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Acute Pneumococcal Epididymitis

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Acute epididymitis caused by the pneumococcus is rare enough to be of interest. In 1941, one of us (N. J. H.) reported a case of epididymitis in which pneumococcus type X was found. Recently we have observed a similar case.

R. M., white male, aged 34 years was admitted to Presbyterian Hospital, February 13, 1948. His only complaint was a right scrotal swelling and severe scrotal pain of two days' duration.

Past history: At the age of 12 years, he was successfully operated upon for congenital exstrophy of the bladder. In 1943, an acute, painful enlargement of the right scrotum developed, associated with a persistent urethral discharge. A diagnosis of gonorrhea was made and penicillin was given. The urethral discharge ceased and the scrotal swelling completely subsided. Syphilis was denied.

Present history: Two days prior to his admission to the hospital, pain and swelling developed in the right scrotum, increasing progressively in severity. There had been no history of recent respiratory infection nor of instrumentation of the urethra.

Physical examination: Revealed a well-developed and well-nourished white male of 34 years of age. The temperature was 101.2 F., and the blood pressure was 120/80. The general physical examination was negative except for poor dental hygiene and numerous carious teeth. There was a suprapubic scar measuring 6 x 11 cm. The external genitalia revealed a complete epispadias. The right scrotum measured 18 x 10 x 10 cm., and was markedly inflamed, tense, hard and the normal scrotal folds were absent. The mass did not transilluminate light and was not fluctuant. The left testicle, epididymis and vas deferens were normal. The rectal examination revealed a grade 1 enlargement of the prostate.

Laboratory studies: The blood count showed hemoglobin 12.5 grams, erythrocytes 4.02 million, and leucocytes 18,650. The urine showed albumin 1+; erythrocytes 0-1 per cubic millimeter, leucocytes 5-10 per cubic millimeter. The Kahn serology test was negative, and blood non-protein-nitrogen was 36 mgm. per cent. Repeated smears from the urethra were negative for gonococci, and gonococcus complement fixation test was negative. Repeated urine smears, urine cultures, sputum examinations, and guinea pig inoculations of the urine were negative for tubercle bacilli.

The chest x-ray revealed normal lung fields and heart shadow. A plain x-ray of the genitourinary system showed both kidney outlines enlarged and a wide separation of the symphysis pubis. The excretory pyelograms revealed the right renal pelvis and calyces to be slightly dilated and a normal left renal pelvis and calyces. There was a smooth outline of an intact urinary bladder.

Operation and clinical course: Elevation of the scrotum and hot packs gave some relief of the pain. However, the swelling and inflammation persisted and the patient ran a septic temperature of 100.1° to 102.2° for seven days. On February 20, a fluctuation was elicited in the right scrotal mass. The following day a longitudinal incision 5.5 cm., in length was made in the anterior right scrotum and a large quantity of purulent material was evacuated from the epididymis. The testis was normal. There was marked induration and inflammatory reaction in the surrounding scrotal structures. The cavity was packed with vasoline gauze and the incision left open. Cultures of the purulent material revealed a pneumococcus, type III. The gauze packs were removed on the fourth post-operative day. The post-operative course was uneventful, the swelling and induration rapidly subsiding. The patient was discharged from the hospital with the incision healed on the ninth post-operative day. A follow-up examination two weeks after discharge showed a complete healing

From the Department of Urology, Presbyterian Hospital.

TABLE 1

AUTHOR	Age	Primary Disease	Metastatic lesions	Type X Organism	Diagnosis	Treatment	Result
Landor and Sreenivasan	25 yrs.	Bilat. lobar pneumonia	Bilateral involvement epididymides	Type 1 pneumococcus	Bilateral suppurative epididymo-orchitis	Incision and drainage	cured
Landivar	20 months	Pneumonia	Right epididymitis	Pneumococcus	Right suppurative epididymitis	Aspiration; incision and drainage	cured
Landivar	28 yrs.	Subscapular abscess	Left epididymis	Pneumococcus	Left suppurative epididymo-orchitis	Incision and drainage	cured
Jasonna	3 yrs.	Broncho-pneumonia; Empyema	Left epididymis	Pneumococcus	Left suppurative epididymitis	Aspiration; incision and drainage	cured
Hendricksen	50 yrs.	Bronchitis	Bilateral epididymitis; Suppurative arthritis rt. knee	Type 111 pneumococcus	Bilateral suppurative epididymitis	Incision and drainage	death
Huard and Boutareau	Not given Adult	Traumatic injury	Left epididymis	Pneumococcus	Left suppurative epididymitis	Epididymectomy	cured
Valerio	36 yrs.	None	Right epididymis	Pneumococcus	Right suppurative epididymitis	Incision and drainage	cured
Freville and Ngujenvan-Luong	30 yrs.	Right lobar pneumonia	Bilateral involvement epididymides; Rt. wrist	Pneumococcus	Bilateral suppurative epididymitis; suppurative arthritis rt. wrist	Incision and drainage	cured
de Leon	7 mos.	Not determined	Not determined	Pneumococcus; B. influenzae	Suppurative rt. epididymitis Suppurative arthritis rt. ankle; meningitis.)	Conservative	death
Heckel and Preston	66 yrs.	Urethritis following instrumentation	Right epididymis	Type X pneumococcus	Right suppurative epididymo-orchitis	Right epididymectomy and orchiectomy	cured

of the incision and regression of the scrotal swelling.

In a review of the literature, ten cases of pneumococcus epididymitis have been collected. Some authors report orchitis due to the pneumococcus but do not mentin the epididymis. In 1894, Prioleau reported a case of suppurative orchitis following lobar pneumonia in which the pneumococcus from the genital lesion was morphologically similar to that in the sputum. It is possible that he was dealing with an epididymo-orchitis in view of the relative rarity of central abscess of the testis. Jensen states that acute epididymitis may be produced by the pneumococcus. Buckingham quotes Mills in reference to epididymitis following pneumonia, but a careful study of Mills' paper reveals no mention of epididymitis. Kranzfeld reports an epididymo-orchitis following pneumonia, but without identification of the organism. Campbell in a report of 3606 cases of epididymitis from Bellevue Hospital, New York, had one case following pneumonia but did not identify the organism.

It is well recognized that pneumonia is actually a systemic disease and produces secondary changes in many organs due either to bacteriemia or to toxins. For instance, Mills in 1919 showed the presence of definite testicular changes during the pneumonic process and suggested toxins as a possible cause.

In the table is summarized the data on the ten collected cases. The ages varied from seven months to 66 years. In nine cases the pneumo-

coccus was found in pure culture. The influenza bacillus was associated with the pneumococcus in one case. The epididymitis occurred secondarily to lobar pneumonia in three cases; to bronchitis in two cases; to subscapular abscess in one case; to accidental trauma in one case; and in one case occurred spontaneously. In de Leon's case in which there was a right suppurative epididymitis, suppuration of the right ankle joint, and suppurative meningitis, the primary lesion could not be determined. In three cases the pneumococcus apparently invaded the epididymis through the urethra. It is evident in the other cases that the epididymitis was a metastatic lesion. The epididymitis was bilateral in three cases; on the right side in five cases; and on the left side in two cases. The testicle was involved secondarily in four cases. Suppuration occurred in all of the ten cases.

Incision and drainage was the preferred method of treatment, being used in seven cases; epididymotomy and orchiectomy was performed in two cases, and conservative therapy followed in one case. There were two deaths; de Leon's case, due to meningitis, and Hendricksen's case due to pyemia.

Our patient compares closely with that of Valerio's. His patient also gave no antecedent history, except that of an anterior urethritis fourteen years earlier. The pneumococcus in the genital lesion of our patient was morphologically, culturally, and immunologically identified as Type III. It is probable that the entry of the organism was through the urethra, especially so in view of the epispadias with its gaping, shortened channel open to invading bacteria.

As is noted in our findings and confirmed by earlier authors, conservative therapy is of no avail in this disease. This is in marked contrast to the prevalent treatment in other types of gonococcal non tuberculous epididymitis. With the consideration of the clinical characteristics of this lesion, viz. rapid onset of severe local inflammatory reaction; lack of response to conservative therapy; and suppuration, it is obvious that the only procedure to be followed is incision and drainage at the earliest sign of suppuration. Early drainage will, in most instances, obviate the necessity for an epididymo-orchiectomy.

SUMMARY

1. A patient with right epididymitis caused by pneumococcus type III is reported.
2. The mode of entrance of the organism was through the urethra.
3. Ten cases of pneumococcal epididymitis have been collected from the literature.
4. The lesion may occur secondarily as a metastatic blood-borne lesion, or primarily by direct entrance through the urethra.
5. The preferred treatment is incision and drainage.

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Multiple Sclerosis and Pregnancy

H. M. Edwards, M.D., H. M. Edwards, Jr., M.D., and J. L. Tavenner, M.D.
Dixon

Little is said in standard text books about multiple sclerosis complicating pregnancy. This follows naturally, for only 4 cases[1] have been reported in this country. We wish to present a case of multiple sclerosis complicating pregnancy in a 42 year old woman who was delivered by cesarean section. This patient's neurological disease was far more advanced than the other reported cases.

We experienced considerable anxiety in choosing an anesthetic. Since ether and chloroform are contraindicated,[2] and we feared using spinal anesthesia[3] in the face of disease of the spinal cord, we chose local novocain infiltration supplemented with intravenous pentothal. This combination was most successful.

Mrs. M. S. was a 42 year old white para iii gravida iv whose neurological disease began three years prior to our first seeing her. Her past history was unremarkable. Her three children are young, normal adults. She had been seen in June, 1944, by a neurologist who made a diagnosis of multiple sclerosis. His observations included a spinal fluid examination. Her disease progressed rapidly. By June, 1945, she was unable to walk. Six months later, her speech became obviously defective. We saw her for the first time in the fifth month of her pregnancy. She was lying in bed with her legs and feet held in the extended position. There was almost complete loss of voluntary motion of all extremities because of weakness and spasticity. Emotional lability was demonstrated by her easily provoked smiling and crying. There was nystagmus on lateral gaze to the left. There was no diplopia or bitemporal pallor. Her speech was slow and jerky and the dysarthria was so marked that her husband had to interpret her statements for us. The tendon reflexes were hyperactive throughout. The abdominal cutaneous reflexes were absent. There was no response to plantar stimulation. Position sense and touch sensation were normal. The pregnant uterus was palpated and fetal heart sounds were heard. Because of the marked spasticity, the vaginal examination was unsatisfactory. The general physical examination was normal. Except for slight ankle edema on several occasions, her prenatal course was unremarkable.

She was admitted to the Dixon Public Hospital on June 2, 1947. A classical Caesarean section was performed June 7, 1947. The indication for section was generalized weakness and spasticity due to multiple sclerosis. Novocain infiltration was used until the peritoneum was opened. At this point intravenous sodium pentothal was supplemented. A normal girl, 6 pounds 3 ounces, was delivered. The baby cried immediately.

The postoperative course was completely unremarkable. There were no objective changes in her mutiple sclerosis three months after delivery. A complete neurological examination at the end of this period revealed essentially the same positive findings that are mentioned above. The infant, who is being cared for by her adult sister, appears to be normal three months after delivery.

COMMENT

A case of pregnancy in a 42 year old woman with advanced multiple sclerosis is presented. Pregnancy did not alter the course of the disease. Local novocain infiltration supplemented with sodium pentothal was found to be a satisfactory anesthetic for cesarean section in this case.

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COUNCIL MEETING MINUTES

The regular March meeting of the Council was held at the Palmer House, Chicago, Sunday, March 13, 1949, with the following present: Hedge, Hopkins, Stevenson, Hughes, O'Neill, Harker, Hawkinson, Vaughn, Saunders, Blair, Peairs, Norbury, Hulick, English, Lane, Otrich, Coleman, Berghoff, Neece, Hutton, Neal, Leary, Cross, Hoeltgen, Bornemeier, Warren H. Cole, Edw. F. Stegen, Camp and Frances C. Zimmer. Minutes of last meeting approved.

SECRETARY reported on progress since last meeting. Told of development of Speaker's Bureau in office of James C. Leary, referred to meeting held at La Salle Hotel, February 27, when nearly 175 were present, and about 100 speakers were listed. Referred to literature distributed as prepared by Leary; popularity of speaker's cards, and many requests being received from all parts of country for same. Told of meeting arranged for Cincinnati, April 7 by United States Chamber of Commerce dealing with "Has your community kept pace with the Nation's Health Progress?" Urgent request that an official representative from this Society be at the conference. Told of response to appeal for members to pay A.M.A. special assessment, and this highly favorable, predicted that probably 90% of membership will pay same promptly. A number of counties already report 100% collections, and many others almost 100%.

National Conference of Presidents and other State Society Officers and the Annual Conference of County Society Officers (Grass Roots Conference) are scheduled for Atlantic City during annual A.M.A. Session. Recommends that official representatives be present at these conferences, as in the past. Secretary-Treasurer gave regular financial statement to the Council.

MOTION: English-Vaughn, that the title, Director of Public Relations Bureau, Illinois State Medical Society, be given to Mr. Leary. Motion carried.

MOTION: Camp-Neece, that Hutton be asked to go to Cincinnati meeting as the official representative of this Society. Motion carried.

MOTION: Vaughn-Blair, that assessment be sent to National Conference of Presidents and other State Society Officers, as has been done in the past. Motion carried.

MOTION: Lane-Blair, that the President attend this Conference in Atlantic City. Motion carried.

MOTION: Vaughn-Neece, that H. Kenneth Scatliff be the official delegate to the Conference of County Society Officers. Motion carried.

HOPKINS reported as president, telling of the many meetings he has attended and the apparent increasing interest on the part of laymen on compulsory health insurance and a growing resentment of Government encroachments on medical care, increased taxation, etc. Told of recent meeting at Galesburg Division, University of Illinois, the Department of Labor and Industrial Relations, at which compulsory health insurance was freely discussed. The Society was able to get representation on the panel discussion on compulsory health insurance, the speakers making fine presentations as opponents of the proposal.

Hopkins recently appointed F. Lee Stone, Chicago, as the official member of the "Committee of Fifty Three" as requested by the A.M.A. First meeting of this group was held in Chicago on February 12. Referred to letters from president of the Pennsylvania Society, who developed a ten point program which he stated Senator Hill, Alabama, would use in drafting a substitute bill for S.B. No. 5.

Told of interesting meeting recently attended as arranged by Tax Payers Federation of Illinois. Will

have more to say on that subject later. At the request of Hopkins, the Council unanimously went on record again as opposing compulsory health insurance, and copies to be sent to senators, congressmen, etc.

STEVENSON reported as president-elect, telling of many meetings he had been attending and the several talks he had been making before various types of lay groups. Has a busy itinerary for month of April in all parts of the State. Discussed importance of radio in the present educational program and told of recent conversations with an outstanding radio station manager.

HEDGE reported as chairman of the Council, stating that he had several recommendations to make at this time. Discussed expansion of Leary's office and new duties which have been assigned to him. Will necessitate additional expense, for assistants and materials which will be needed. Council went into executive session, for discussion of these proposals, all of which were acted upon.

Hedge as chairman of the Journal Committee stated that this Committee has been endeavoring for months to follow the orders of the Council to procure a satisfactory Associate Editor for the Illinois Medical Journal. The Committee was unanimous in recommending that efforts be made to get Theodore R. Van Dellen to accept this appointment. He had interviewed Van Dellen who was interested and at the recommendation of Hedge and his Committee, the Council authorized the employment of Theodore R. Van Dellen as Associate Editor to take effect April 1, 1949.

REPORTS OF INDIVIDUAL COUNCILORS:

Blair reported that members in industrial areas in his district have been cooperating splendidly in payment of the special assessment, but wanted more information as to what is to be done in this educational program. He has endeavored to give answer on each occasion.

Lane discussed the special assessment, stating that the returns throughout his Southern Illinois District had been most satisfactory and through the efforts of local society secretaries, the plan had been well presented.

Neece told of a recent visit to Texas and attending meetings where this question was discussed. He spoke before one large society giving information on the assessment subject and the results were most satisfactory.

Vaughn told of the success of the recent Chicago Medical Society annual Clinical Conference. There was an overall registration of 4,507, of whom 2825 were physicians. There were 852 of these from outside of Chicago and Cook County.

Otrich discussed the meeting at the La Salle Hotel on February 27. Members from his local society who were present were enthusiastic over the educational program plans and the newly created speaker's bureau. He believes this conference was a most timely one, and will pay good dividends. Other members participated in the discussion of several activities during this part of the meeting.

HUTTON reported progress on the part of the Committee on Medical History stating that much valuable historical data is being procured each month and the cooperation on the part of the Auxiliary and others has been fine. Referred to regular meetings of Committee on Medical Service and Public Relations held that morning, a breakfast session. Warren H. Cole, as chairman of the C.M.S. committee, meets with Hutton's committee and efforts are being made constantly to coordinate the activities of the two committees. Leary told of recent work in his office, his expanded duties have required a great deal of time and effort. Told of many requests for the speaker's cards from all parts of the country. Referred to Rural Medical Care Committee conferences at Mount Vernon and Peoria, both of which he attended. Much interest was shown and there was much favorable publicity from these conferences. He requested that all speakers should report to his office on all talks made before lay groups, and would like (1) Records of all talks (2) Records of all speakers in each county and (3) Biographic data on all speakers. This information will permit him to keep adequate records and furnish material for subsequent reports.

NEAL told of recent legislative activities at the State Capitol; referred to bills introduced in State legislature as well as in the Federal Congress. Informal discussion of some of these proposals and Neal stated a report would be mailed soon to the Society membership as a whole.

BLAIR reported as chairman of the Educational Committee, telling of the work being done in that office. Referred to the television programs now being presented each week over WGN-TV which are becoming more popular each week. Dr. Van Dellen has been moderator for these programs and he has been of inestimable service to the Committee. So far as he knows, only one other State society is presenting this type of program regularly. At the request of Blair, the Council authorized the sending of an official thank you letter to Dr. Van Dellen for his fine cooperation in presenting these programs.

BERGHOFF reported as chairman of the Committee on Postgraduate Education and the Scientific Service Committee, telling of the Postgraduate Conferences scheduled for the month of March in La Salle and in April, Du Quoin, Quincy and Danville. Many scientific meetings are being arranged for county societies, and in some instances, the Committee sends out notices for the society relative to these meetings.

Cross, as Director, State Department of Public Health, told of recent activities within his department. Told of proposed change in the Searcy-Clabaugh Act to make it compulsory for county boards to place on the ballot the request to vote on county health departments, after receiving petitions for same signed by the required number of voters. Other matters pertaining to health of people in Illinois were discussed.

Hopkins told of recent meeting of his Committee on Prepaid Medical and Surgical Plans. Progress has

been slow but some excellent insurance companies are now writing policies throughout Illinois. Another meeting of his committee will be held before the Annual Meeting in May.

Coleman reported as chairman of the Medical Advisory Committee to the Illinois Public Aid Commission. This committee met the preceding evening with officials of the I.P.A.C. at which time the usual agenda was covered. There was a general belief that some fees were too low for services rendered to clients of the I.P.A.C., but at this time with unemployment on the increase, and a limited appropriation, this did not seem to be the time to make the recommendations. Administrative costs for operating these programs has been kept down in Illinois much lower than in most other States, from information given to the committee.

English told of the conferences on Rural Medical Care held in Mount Vernon and Peoria. Unusual interest was very much in evidence at both places. He told of the programs given, the interest shown, and is thoroughly impressed with the proposal that similar conferences be arranged in the future. English told of a desire to hold a dinner conference in Chicago in April for some 50 to 60 interns and residents in Chicago hospitals who will soon be seeking locations. There are a number of fine openings available especially in rural areas which should be brought to their attention. He would like permission to hold this conference, have a fine dinner, then a program which would be pertaining to subjects of interest, yet are not scheduled so far as he can ascertain, at any of the medical schools.

MOTION: Harker-Norbury, that English be instructed to hold such a conference in April. Motion carried.

Bornemeier, in the absence of Hoeltgen, told of plans for work of the Committee on Arrangements for the Annual Meeting. Everything has been arranged, and the Committees are all desirous of doing their part in making the Annual Meeting a most successful one.

Cole heartily endorsed the recommendation of English for the conference and dinner for the interns and residents. He stated that a recent poll taken at the University of Illinois College of Medicine of the Juniors, only 18%, desired to go into a specialty and the remainder prefer to become general practitioners. This is, indeed, quite a contrast with similar polls in previous years. Cole also discussed the possibility of his Committee on Cancer Control developing a suitable manual on Cancer to go to the entire membership. This would be rather expensive but the Committee is willing to make an investigation as to probable costs and the results that might be expected from such a venture.

The Council authorized Cole and his Committee to make the necessary investigations and to report back to the Council at a later date, and at the same time, approving the proposal in principle.

It was moved that the desired budget asked for by the Woman's Auxiliary to help pay expenses of their annual convention be allowed. The following were elected to Emeritus Membership: C. C. Meeks, Pontiac; J. D. Scouller, Pontiac; Wm. T. Johnson, Eldorado; A. E. Everett, Granite City; Michael F. Dorsey, R. Robinson Duff, Victor S. Frankenstein, Elzear LaMothe, John H. Nowlin and Leopold H. Pijan, all of Chicago; Wm. P. Fread, Ottawa; Carl C. Lawry, Earlville; Harry S. Lester and Roy Sexton, Streator; Ralph H. Woods, La Salle; Kellogg Speed, Highland Park; E. R. Cochran, Rockton; John W. Dreyer, Aurora; George H. Miller, Bellaire, Michigan.

The following were elected to Past Service Membership: W. R. Meadows, Elgin; Frank L. Smith, West Chicago; George H. Mussellman, Galesburg; R. E. Lee Gunning, Tucson, Arizona; A. B. Storm and J. H. Donavon, Windsor; H. E. Canfield and Thomas A. Johnson, Rockford; James S. Johnson, Cairo; O. A. Rawlins, William H. Rose, S. T. Richmond, I. Val Freedman from Chicago and Erwin J. Rueck, Gifford.

Bills as audited by Finance Committee were approved by proper action. F. Lee Stone, as chairman of the Committee of Fifty Three, was appointed as a member of the special coordinating committee previously named by the Council, as requested by Hopkins.

Council adjourned at 3:00 p.m.

Harold M. Camp, M.D.
Secretary-Treasurer

PATHOLOGY CONFERENCES

EDWIN F. HIRSCH, DEPARTMENT EDITOR

Cortical Adenomas of Arteriosclerotic Kidneys

Alston C. Twiss, M.D.
Chicago

Sturm[1] in 1875 differentiated the solitary adenoma of the otherwise normal kidney from the adenomas of the kidney with arteriosclerosis. The adenomas of the normal kidney, he stated, occur mainly in children and consist of newly formed alveoli. Adenomas of the arteriosclerotic kidney, according to Sturm, occur in adults beyond the age of 40 years. These solitary tumors develop along the lower third of the convex edge of the kidney and in the beginning are in the cortex. Microscopically, the tissues have dilated tubules and papillae. Weichselbaum and Greenisch according to Ewing[2] subsequently separated alveolar from the papillary forms of solitary growths. The relative frequency of different types of these renal tumors is difficult to ascertain because of the difference of opinion in the classification.

Adenomas of the kidney are usually small, may be single or multiple, and appear in the cortex just beneath the capsule. Large adenomas are rare. Pathologists generally agree that adenomas of the kidney originate from the renal tubules, an origin first proposed by Albarron and Imbert[3]. There is, however, a sharp difference of opinion concerning the pathogenesis of adenomas and while numerous views have been expressed two main opinions prevail. The first is that adenomas develop as a compensatory mechanism from the epithelium of hyperplastic convoluted tubules and cysts in damaged kidneys; the second holds that they are associated with abnormalities in the embryologic development of kidneys.

From the Henry Baird Favill Laboratory of St. Luke's Hospital.

Arteriosclerotic kidneys with large coarse scars on the surface frequently have multiple adenomas. Ewing considered the common papillary cystadenomas seen frequently in arteriosclerotic kidneys as secondary to vascular occulsion. Many others have also stressed the frequent association of adenomas and arteriosclerosis. Bell[4] stated that adenomas are seen rather frequently in the kidneys of hypertensive patients but are rare in the contracted kidneys of chronic glomerular nephritis. This he believed, is due probably to the fact that a primary obliteration of arteries occurs rarely in the latter disease, the atrophy being due to obliteration of the glomeruli from intracapillary obstruction. There is a general agreement that papillary cystadenomas and related new growths are found chiefly in arteriosclerotic kidneys. Oliver and Luey[5] observed that a tubule belonging to a hyalinized glomerulus does not necessarily atrophy but may hypertrophy, dilate and even become hyperplastic. They stated that aglomerular nephrons have a blood supply adequate for maintenance and growth despite obliteration of the capillary bed in the glomerular tuft. The compensatory blood supply is provided by the vessel of Ludwig, which shunts the blood from the afferent arteriole directly into the intertubular capillary system. Not only may the amount of blood reaching the tubule be sufficient, but this blood may stimulate peculiar progressive reactions because of the directness of its course to the tubules. It has not passed through the glomerular tuft but reaches the tubules still laden with products which under normal conditions would have been removed by glomerular filtration. The demands for functional response on the aglomerular tubule and the corresponding growth process of hypertrophy and hyperplasia must be abnormally great in such kidneys. Thus, hyperplasia and hypertrophy may make a structurally intact tubule the physical equivalent of twelve normal units. Willis[6] stated that the continuity of adenomatous epithelium with renal tubules can often be traced and the genesis of the growth appears clearly to be a progressive transformation of tubules into tumor, a process which accounts largely for the intermingling of tumor and renal tissues. According to Trinkle[7], the papillary cysts develop from either local or generalized proliferation of the lining epithelium of the small simple cysts. Papillary cystadenomas develop both from the papillary cysts and directly from simple cysts. Connective tissue from the surrounding stroma grows into the epithelial projections to give them support. These are then capable of branching and rebranching to form a complicated intracystic network, typical of the papillary cystadenomas. Solid papillary adenomas develop directly from cystadenomas. The growth of papillary adenomas may result in a structure similar to that of certain hypernephromas.

The second view concerning the pathogenesis of renal adenomas is that those not arising from cysts, orginate in some structure representing an aberration from the normal development of the kidney. In 1897 Albarron[3] described displacement and imperfect development of the renal tubules which he believed resulted from errors of fusion in the capsule and cortex of the kidney. He suggested that renal neoplasms could originate from them. In 1915 Gerlach and Gerlach according to Kozoll and Kirshbaum[8] detailed the growth cycle of hypernephroma and contended that cortical adenomas develop from aberrant rests of cortex tissues of the suprarenal gland. The adenoma then undergoes further hyperplasia and differentiation into a hypernephroma, at first benign and then cancerous. This continuous development explained the varied histological structure from papillary to adenoma and from carcinoma to sarcoma.

Microscopically, according to Willis[6], cortical adenomas have a predominating intracystic papillary structure, justifying Newcomb's designation "papilliferous cystadenoma". Others have tubular or solid regions and many various structures may be seen in one nodule. In many adenomas, the epithelium consists mainly of small compact cuboidal cells but in other tumors the cells are largely vacuolated or foamy and closely resemble those of the clear-cell renal carcinoma. Solid and clear-cells may occur in one tumor. Common structural features attributable to secondary changes include the accumulation of phagocytic "foam" cells in the stroma of the tumor, calcification, intracystic hemorrhage and deposition of blood pigment in the epithelial cells and in the stroma. Many small adenomas are not encapsulated and the marginal tissues mingle with the neighboring renal tubules. Other nodules have thick fibrous capsules but

these are rarely, if ever, complete and at one or more places extensions of the growth through the capsule merge with the surrounding kidney tissues.

The separation between benign and cancerous adenomas on the one hand and carcinoma on the other is not sharp. A large portion of the parenchymal renal carcinomas fall into two morphologic groups, a papillary and an alveolar. Sturm[1], as early as 1875, contended that adenomas in children undergo a rapid transformation and that the adenomas of an adult undergo a slow transformation into clinical carcinoma. That adenomas undergo a slow tranformation into clinical carcinoma is a view supported by many. The evidence of transformation from adenomas to carcinoma is more convincing in the papillary than in the alveolar forms. Several such apparent transitions were in the report by Cristol, McDonald and Emmett[3]. Evidence tending to support a relationship between carcinoma and adenoma is found in a case of Nicholson[9]. He described a tumor of a kidney, surgically removed, which had the structure of carcinoma and a recurrence developed six months later at the site of removal. Tissues of this recurrence had the characteristic microscopic form of a papillary adenoma. Bell[10] and Creevy[11] have arranged all tumors of the renal parenchyma into two groups, adenomas and carcinomas. To prove that the adenoma was the precursor of the carcinoma, Bell presented 149 tumors from the records of approximately 20,000 consecutive autopsies. Among 65 of these tumors with a diameter of less than 5 cms., only 5 had produced metastases. Of 84 with a diameter greater than 5 cms., 66 had produced metastases. Bell stated that the histological structure afforded no reliable means of differentiating an adenoma from a carcinoma. Bell's adenomas are identical with the new growths which Kozoll and Kirschbaum[8] designate as benign hypernephroma or hypernephroid adenoma and they concluded that a hypernephroma, regardless of size, can only be considered benign when metastases and local spread have been excluded. They described multiple histological types and structures even in the benign hypernephroma. Willis[6] stated that adenomas have a structure indistinguishable from that of carcinomas and whether such tumors should be regarded as a typical adenomas or as small carcinomas discovered before they have metastasized is largely a matter of opinion. Many an "adenoma" found incidentally during a necropsy does not differ from some of the small symptomless carcinomas which have produced metastases. He stated that no structural criteria permit a differentiation of the cancerous from the benign phase. The available evidence seems sufficient to justify the conclusion that some carcinomas develop from papillary adenomas of the kidney.

Arteriosclerotic kidneys with many large and small cortical adenomas were observed recently during a necropsy at St. Luke's Hospital. A 42 year old white male entered the hospital on December 11, 1947 for a cardiovascular evaluation and was a known hypertensive for 10 years. His temperature was 99.2°F., pulse 100, respirations 20 per minute and the blood pressure was 230/145 mms. of mercury. The eye grounds had a grade 3 retinopathy, his heart was slightly enlarged to the left and had a soft systolic apical murmur. The remainder of the physical examination was not significant. The erythrocyte count and the leucocyte counts were not unusual. The straw-colored, acid urine had a specific gravity of 1.012 and contained 200 mgms. of albumin, many hyaline and finely granular casts per low power field and 3-4 erythrocytes per high power field. The blood urea nitrogen was 29.8, the non-protein nitrogen 55.5, the creatinine 2.4, the sugar 114 and chlorides 560 mgms. percent. The total blood proteins, the erythrocyte sedimentation rate and the clotting activity of the blood were within normal limits. The electrocardiogram indicated some myocardial pathology. On June 9, 1948 he was readmitted to the hospital with a huge, recent spontaneous hemorrhage of the right basal ganglia and thalamus with laceration and extensive intraventricular hemorrhage of the brain. Death occurred shortly after admission.

The right kidney was 11.5 by 5 by 2.4 cms. (Figures 1 and 2). Under the capsule were many large nodules of yellow tissue, some of them hemorrhagic, and when the capsule was stripped away there were multiple nodules of yellow tissue in both the anterior and posterior surfaces, very much like hypernephroma tissues. The largest, on the anterior surface just below the center, was 2.8 cms. in diameter. Two others along the convex edge were 1.5 cms. in

Figure 1. Photograph of the capsular surface of the right kidney illustrating the multiple large and small cortical adenomas.

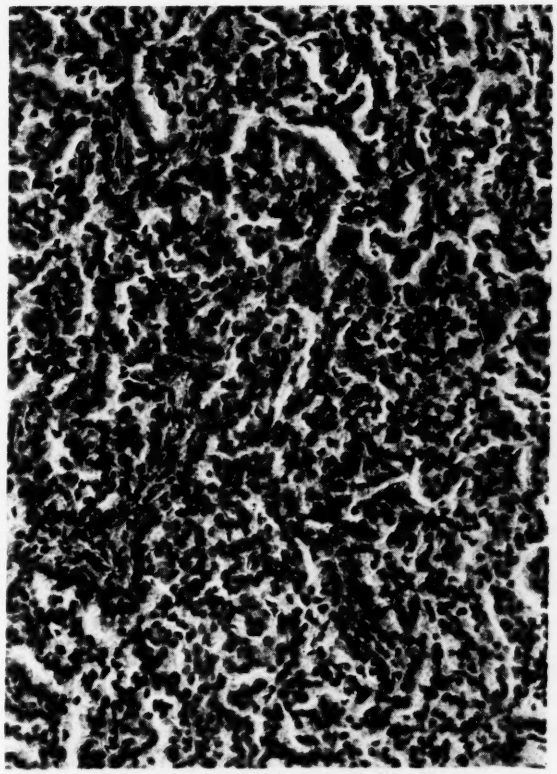
Figure 2. Photograph of the surfaces made by hemisecting the right kidney and illustrating the distribution of the nodules in the cortex.

Figure 3. Photograph of the capsular surface of the left kidney illustrating the large adenoma at the upper pole and others elsewhere.

Figure 4. Photograph of the hemisected left kidney to illustrate the adenomas.

diameter, and on the posterior surface, mainly the lower half, were about 8 or 10 more that ranged between 3 to 10 mms. in maximum diameter. The capsular surfaces were dark red and coarsely granular. On the anterior surface and also the posterior were several cortical retention cysts that ranged to 1.5 cms. in diameter. The lining of the pelvis and of the right ureter opened down to the brim of the small pelvis was smooth and grey. The renal tissues were dark red, the cortex contrasted poorly with the pyramid tissues and was 8 mms. wide. The cortical markings were somewhat diminished. The pyramid tissues were about 15 mms. wide. Without its peripelvic fat and capsule the right kidney weighed 140 grams. The left kidney (Figures 3 and 4) was 13.5 by 5 by 4.2 cms. Along the convex edge toward the lower pole was a retention cyst 3.5 cms. in diameter. At the upper pole was a nodule with a maximum diameter of 4.5 cms. The tissues were yellow with mottlings of tan-brown. The capsule stripped with moderate resistance from a granular red-brown surface. On the subcapsular surface were about twelve other yellow nodules ranging to 1.5 cms. in diameter. The lining of the left renal pelvis and ureter was smooth and grey. The left kidney without its peripelvic fat and capsule weighed 135 grams. The suprarenal glands were not unusual. Many surfaces made by cutting had a thin yellow cortex and a tan-brown medulla.

Histological preparations were made of the cortical adenomas of both kidneys. Several adenomas consisted of small dilated tubules and cysts lined by epithelium which at different places had papillary folds of vascular stroma covered by cuboidal or columnar epithelial cells. The nuclei stained deeper than those in the cells in the adjacent renal tubules. The cytoplasm of these cells was granular and stained lighter than of the cells of renal tubules. Other adenomas were mainly of the solid variety and appeared to be encapsulated. The papillary processes branched and rebranched to form the largest portions of the adenomas (Figures 5 and 6). There were a few cysts and dilated tubules. In some regions the cells had a tendency toward



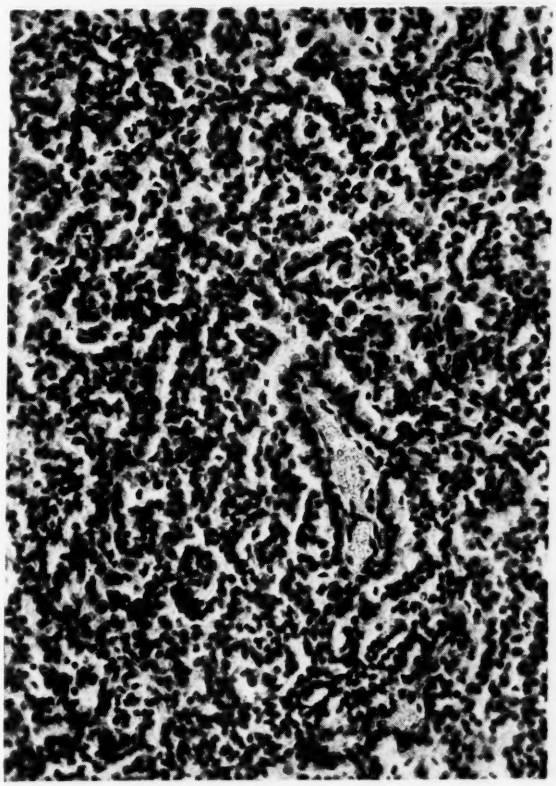


Figure 5 (above) and Figure 6. Photomicrographs illustrating the histologic structure of the adenomas. (X 198)

tubule formation. The epithelial cells were cuboidal to columnar with a darkly stained nucleus in the basal portion of the cell and a grandular cytoplasm that stained deeper than the normal tubules. Between these two main types of cortical adenomas were adenomas of intermediate structure. They were in various stages of transformation from the cystic adenomatous type to the more solid papillary form. The renal parenchyma surrounding these adenomas had glomeruli which varied in size and with a moderate to slight fibrous tissue thickening. Bowman's capsules were thin but the tufts were cellular and fibrous. Connective tissue scars with infiltrations of lymphocytes replaced considerable parenchyma. The walls of the blood vessels were thickened by fibrous tissues, especially the intima.

COMMENT

Cortical adenomas occur commonly in the kidneys with arteriosclerotic contraction. They appear as small single nodules often with a tinge of yellow or in multiple nodules that may reach considerable size. Two main views prevail concerning the origin of these growths: 1) a compensatory hyperplasia of damaged kidney tissues, and 2) abnormalities in embryological development. The tissues of adenomas histologically resemble, in certain respects, those of hypernephromas and they may simulate, even closely, a carcinoma of renal parenchyma. Arteriosclerotic kidneys with numerous large and small cortical adenomas are described in this report.

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NEWS OF THE STATE

CHAMPAIGN

Society News.—At a recent meeting of the Champaign County Medical Society at the Country Club, Drs. J. P. Nesselrod and Jay Garland, both of Chicago, presented a movie film in color and kodachrome slides, illustrating a talk on "Anorectal Conditions Encountered in General Practice."

COOK

Personal.—Dr. Charles D. Krause, instructor in obstetrics and gynecology, University of Illinois College of Medicine, will address the Sixth Councilor District of the Wisconsin State Medical Society in Oshkosh, May 19, on Eclampsia. The district comprises the counties of Brown, Door, Fond du Lac, Kewaunee, Outagamie and Winnebago counties.—Two hundred persons gathered to honor Dr. Louis H. Coggs on his thirty-second birthday recently and to mark his many services as a "country doctor" in a big city; Dr. Coggs has been engaged in general practice in the Altgeld community, a Chicago south side housing project, which has a population of more than 8,500.—Dr. Louis B. Newman was guest speaker at the postgraduate course in physical medicine and rehabilitation, University of Texas Medical Branch, Galveston, February 28-March 4. Dr. Newman, who is chief of physical medicine rehabilitation at the Veterans Administration Hospital, Hines, gave an illustrated lecture on "Physical Medicine and Rehabilitation in Thoracic Surgery."—Dr. Joan Fleming has been appointed assistant professor of psychiatry at the University of Illinois College of Medicine.

Society News.—"Advances in Gastric Surgery" was the title of a talk by Dr. Raymond W. McNealy, associate professor of surgery, Northwestern University Medical School and chief surgeon, Wesley Memorial Hospital, before the London Academy of Medicine in London, Canada, recently.—Dr. John Bellows, Chicago, assistant professor of ophthalmology, Northwestern University Medical School, addressed the Cleveland Ophthalmological Society in Cleveland, April 12, on "Recent Advances in Chemotherapy of Ocular Infection."—Dr. Max Thorek addressed the Oklahoma Academy of General Practitioners at Shawnee, Oklahoma, March 18, on "Facts on Hirschsprung's Disease of Interest to the General Practitioner" and "The Attitude of the General Practitioner in Gallbladder Disease", both of which were motion picture demonstrations.—Dr. Philip Thorek, Chicago, discussed "The Surgical Treatment for Advanced Carcinoma of the Colon" before the St. Margaret's Hospital staff in Hammond, Ind., March 1.—Dr. Herman N. Kamin, associate professor of medicine, Chicago Medical School, recently addressed a public lecture at the nurses residence of Mount Sinai Hospital on "Geriatrics: New Goals for Old Age."—The Chicago Council on Community Nursing was addressed by Miss Lucile Petry, chief, nurse division, U. S. Public Health Service, on "Present Trends in Nursing, March 28. On April 25, Dr. Esther Lucille Brown discussed "Nursing for the Future" before the Council.

Specialty Meetings.—A symposium on urinary lithiasis comprised the morning program at a regular meeting of the Chicago Urological Society, March 24. The following speakers participated: Dr. C. D. Creevy, Minneapolis; Dr. James C. Sargent, Milwaukee; Dr. T. P. Grauer, Dr. Charles Huggins and Dr. Harry C. Rolnick, moderator. A pyelogram clinic was conducted by Dr. Herman L. Kretschmer. In the evening the speakers were Dr. Creevy, Dr.

Irving J. Shapiro, Dr. John H. Olwin, Dr. Frank B. Papierniak and Dr. Nathaniel G. Alcock, Iowa City.

Course in Endocrinology.—On April 4, a weekly one hour postgraduate course on various aspects of endocrinology opened at the Walther Memorial Hospital, 1116 North Kedzie, Chicago. Participants in the course, which will be held every Monday morning from 8 to 9 a.m., through June, are Dr. James H. Hutton, consulting endocrinologist to the Illinois Central Railroad, C. & E. I., Railroad, Elgin State Hospital and Carnegie-Illinois Steel Corporation; Dr. I. Pat Bronstein, associate professor of pediatrics, University of Illinois College of Medicine, and Dr. Charles D. Krause, instructor in obstetrics and gynecology, University of Illinois College of Medicine.

Special Lectures.—The eighth Edwin R. Kretschmer Memorial Lecture of the Institute of Medicine of Chicago, was delivered April 29 by Dr. Maxwell M. Wintrobe, professor of medicine, University of Utah School of Medicine on "Current Views Concerning the Nature and Management of Leukemia and Allied Disorders." The twenty-fifth Ludvig Hektoen Lecture of the Frank Billings Foundation will be delivered at the Palmer House, Friday evening, May 27, by Dr. William B. Wartman, professor and chairman of the department of pathology, Northwestern University Medical School, on "Bleeding into the Arterial Wall: Its Relation to Vascular Disease."

Branch Meetings.—"The Origin of Symptoms in Biliary Tract Disease" (Post-cholecystectomy Syndrome) was discussed by Dr. Nathan A. Womack, professor and head of the department of surgery, University of Iowa College of Medicine, at a recent meeting of the North Shore Branch of the Chicago Medical Society. Dr. Meyer Brown, assistant professor of nervous and mental diseases, Northwestern University Medical School, discussed "Psychosomatic Problems in Medical Practice." The North Suburban Branch of the Chicago Medical Society was recently addressed by Dr. Alfred C. Ledoux, head of the department of radiology, St. Francis Hospital, Evanston, on "Basic Concepts in Roentgenologic Diagnosis" and by Dr. Roger Allen Harvey, professor and head of the department of radiology, University of Illinois College of Medicine, on "Problems in Radiologic Therapy." The discussant was Dr. Danely Slaughter.

Northwestern's Medical Faculty and Alumni Hold Reunion.—The faculty and alumni of the Northwestern University Medical School held their annual medical faculty-alumni reunion dinner, May 14. Dr. J. Roscoe Miller, retiring dean of the school, who will become president of the university in July, was guest of honor. Dr. Frederick W. Merrifield, an oral surgeon who is a member of the surgery faculties of both the medical and dental schools, was the principal speaker.

Representatives of the five-year medical classes of 1904, '09, '14, '19, '24, '29, '34, '39 and '44 had special tables at the dinner, and members of the 50-year class, that of 1899, the 55-year class, 1894, and this year's graduating class were guests of the Medical Alumni Association.

Milan V. Novak Named to New Post.—Dr. Milan V. Novak has been appointed assistant dean of the Graduate College for the University of Illinois Chicago Professional Colleges. Dr. Novak has been a member of the faculty of the University of Illinois College of Medicine since 1940. He will continue to serve as professor and head of the department of bacteriology.

Dr. Louis N. Ridenour of Urbana is the dean of the Graduate College. Dr. Novak will be in charge of administrative duties for the Graduate College on the campus of the Chicago Professional Colleges.

The new position has been created by the University because of the large increase in enrollment in graduate students working toward master of science and doctor of philosophy degrees, together with the need for expediting routine connected with this work.

There are now 121 students in the Graduate College who are working for advanced degrees in the three health professions, medicine, dentistry, and pharmacy. The number of students enrolled in graduate work on the Chicago campus has tripled since the close of the war.

New Acting Head of Anesthesia.—Dr. Max S. Sadove has been appointed acting head of the division of anesthesia at the University of Illinois College of Medicine. Dr. Sadove also has been promoted from the rank of assistant professor of anesthesia to associate professor. He has been a member of the faculty of the University of Illinois for the past two years.

Dr. Sadove received the bachelor of science degree in pharmacy and the doctor of medicine degree from the University of Maryland.

He spent five years in the Army Medical Corps, including four years in the European theatre. Following his release from active duty, he served a residency in anesthesia at the Veterans Hospital at Hines.

In addition to his present duties at the University, Dr. Sadove also serves as a consultant in anesthesia at Hines and at the Municipal Tuberculosis Sanitarium.

Northwestern Specialist Evaluates Antibiotics in Diseases of Eye.—A Northwestern University ophthalmologist's research has not only determined which of the newer antibotics are best for the treatment of specific eye diseases, but has developed a swifter method of diagnosis and treatment.

He is Dr. John Bellows, assistant professor of ophthalmology in the University's Medical School, who reported the findings April 12 at a meeting of the Cleveland, O., Ophthalmological Club in the

Hotel Statler. Co-operating with him in the research were C. J. Farmer, professor of chemistry and chairman of the department in the Medical School, and Dr. Viola Richardson, laboratory and clinical investigator.

The scientists have perfected a diagnostic system in which smear cultures from the eye are examined to determine which germ is causing the disease. After the organism has been isolated, it is subjected to tests with a series of antibiotics, to ascertain which is the best remedy, in what concentration, and whether by local application or injection. This process completed, in a time much shorter than in previous methods, the course of treatment is then decided for the patient.

Dr. Bellows and his associates reported that streptomycin is the most effective, among all the antibiotics, for the cure of pyocyanius infections of the cornea which heretofore caused loss of the eye in many cases. Streptomycin also was found to be highly effective in treatment of tuberculosis of the eye. Intra-muscular injection is the best method of administration in the latter case.

Bacitracin, effective against the same bacterial infections which are cured by penicillin, was found by Dr. Bellows to have the advantage of not causing allergic reactions in the patient. The specialist believes bacitracin to be excellent for the treatment of many kinds of conjunctivitis ("pink eye") and corneal ulcer due to the invasion of streptococcus, pneumococcus, and staphylococcus.

Almost all eye diseases succumb to aureomycin, the scientists learned, but they have had especially noteworthy results with two stubborn types of infection, herpes simplex and epidemic kerato conjuctivitis. The latter is more commonly known as "shipyard" conjuctivitis.

Trachoma, another eye disease which, if neglected, usually leads to almost certain blindness, yields to treatment with chloromycetin, Dr. Bellows said. By speeding recovery, it prevents damaging scars on the cornea.

The Northwestern University research work by Dr. Bellows and his staff was supported in part by grants from the Office of Naval Research, the Veterans Administration, and the National Research Council.

Grants for Research.—Six grants in the total amount of $22,825 have been awarded to the University of Illinois College of Medicine for research studies, Dr. A. C. Ivy has announced.

The Pope Foundation, Inc., Chicago, has made a $10,000 grant for the support of a research program destined to establish dynamic techniques for the analysis of neuro-muscular skeletal pathology.

Bristol Laboratories, Inc., Syracuse, N. Y., has renewed a $7,000 grant for research on the pharmacology of synthetic penicillin derivatives and analgesic drugs.

A study of the role of amino acid metabolism in leukemia will be supported by a grant in the amount of $4,200 made by the National Institute of Health.

Other grants have been received from the American Medical Association, $625, for the study of the effect of beta radiation from Radium D on the eye; the G. D. Searle Company, $600, for a preliminary study of the antacid compounds; and Abbott Laboratories, $400, for the study of the effect of penicillin and streptomycin in peritonitis as produced experimentally.

New Laboratory Opened.—The University of Illinois' new $400,000 Aero Medical and Physical Environment Laboratory, planned to study the effect of physical environment in health and disease, was officially occupied, April 11.

Research programs were to be undertaken immediately.

Dr. A. C. Ivy, vice-president of the University of Illinois in charge of the Chicago Professional Colleges, is director of the new laboratory. The staff is headed by Dr. John P. Marbarger, research director; Dr. Victor Guillemin, Jr., biophysicist; and Dr. M. K. Fahnestock, engineering director. The research studies will be conducted by interested departments and individuals in the Colleges of Medicine, Dentistry, and Pharmacy, and other units of the University.

The building, located in the Medical Center District on Chicago's near West Side, contains a ground floor and a first floor. It is modern in design, rectangular in shape with a flat roof, and measures 146 feet by 55 feet. The building has been under construction since September, 1947.

The research studies are expected to contribute to basic physiological knowledge concerning the effect of physical environmental factors on healthy and diseased humans. The studies also are designed to improve therapeutic procedures in the treatment of certain types of disease and to supplement present knowledge in the field of aviation medicine.

Major installations in the laboratory which will be available immediately for research include a 20-man low pressure chamber and a 6-man low pressure chamber, both secured from the U.S. Air Force.

The larger chamber is being modified to incorporate the control of dry bulb temperature and relative humidity within limited ranges, and the control of limited positive pressure in addition to negative pressure. It also will be of value in the investigation of problems pertinent not only to aviation medicine, but to any problem in which rigid control on environmental factors within limited ranges is desired.

The 6-man chamber can be used to simulate the very low atmospheric pressure that exists at high altitudes. It will be used in experiments in which it is desirable to control only the barometric pressure and no other environmental factors.

A constant temperature room now is being installed and will be available this fall. It is a room in which the dry bulb temperature can be precisely controlled between minus 40 degress F and plus 150

degress F, and the relative humidity between 15 percent and 95 percent.

The building also contains a mechanical equipment room, a machine tool shop, a biophysics laboratory to be used primarily for instrumentation, a chemistry laboratory, two general laboratories, and space for a department library and administrative office.

Major installations planned for the future include a radiation test laboratory, a constant temperature, humidity, and pressure room, and a noise and vibration-free room.

Radioisotope Unit Unique in Its Triple Function.—The newest radioisotope unit in the middlewest, and one which is uniquely constituted for the triple activities of instruction, research and therapy, has just been established in the Medical School of Northwestern University, it was announced recently by Dr. J. Roscoe Miller, dean.

Equipment for the unit's laboratories is being financed with a grant in excess of $27,000 from the Atomic Energy Commission through the Office of Naval Research.

In addition to providing instruments and other facilities for research involving the use of radioisotopes, the Medical School unit will introduce several new courses into its undergraduate curriculum, and already has formulated a proposed program of postgraduate medical instruction in the utilization of radioactive elements.

The third phase of the unit's operations, that of patient therapy, will involve the University's four affiliated hospitals, Wesley Memorial, Passavant Memorial, Evanston, and Children's Memorial, and one of its cooperating institutions, St. Luke's Hospital.

For all three operations, the AEC will supply the radioactive materials from Oak Ridge, Tenn. They will be used for therapy in cancer and blood diseases, for diagnosis of thyroid diseases and, it is tentatively planned, for the localizing of brain tumors.

Already introduced into the Medical School's freshman curriculum is a course in the department of chemistry in instruction in the basic concepts of nuclear chemistry, its use in research, and the theory and practice of radiological instruments. Phases of this instruction include atomic and nuclear structure, radioactivity, toxicity of radioisotopes and concomitant health hazards, and instrumentation and tracer techniques.

The aim of instruction in health hazards is to make an increasing number of physicians aware of the results of radiation, not only in the event of military operations involving civilian populations, but also because of future greater use of isotopes in industry.

In the sophomore year, an hour lecture will be introduced on the distribution, deposition, and excretion of radioactive isotopes. The students will also be instructed in the treatment of patients suffering from excessive radiation.

Planned for the junior year in the department of radiology is an expansion of its instruction in diagnostic and therapeutic radiology to include consideration of radioactive isotopes. It is intended to give the students additional practice in the use of survey instruments and safety precautions.

Not only will the affiliated and cooperating hospitals participate in the therapy program, but radioactive elements will also be made available to the Medical School's Montgomery Ward clinics.

Supervised by Dr. John A. D. Cooper, assistant professor of chemistry, the laboratory is situated in the Montgomery Ward building in the University's medical center on the Chicago campus. It consists of four rooms so located that they are isolated in a wing from other departments of the School.

One of the rooms is being converted into a "hot laboratory" with equipment for handling and processing of multimillicurie shipments of radioactive elements according to the recommendations of the AEC health physics division. Equipment in this room includes a shielded high velocity hood for use in manipulations in which the possibility of airborne radioactivity arises. The "hot laboratory" will receive and process isotopes for both research and therapy.

Another of the rooms in the suite is being equipped solely for counting radioactive samples. Among the facilities are scaling units and shielded sample holders to allow simultaneous research on several problems.

In addition, the laboratory plans include two small analytical laboratories, already furnished with equipment for biochemical research, which will be used for handling low activity samples which do not require the more elaborate protection of the "hot laboratory."

Acting in an advisory capacity in establishment of the laboratories are Argonne National Laboratory engineers and Prof. Burgess Jennings, chairman of the department of mechanical engineering in Northwestern University's Technological Institute.

Personnel of the radioisotope unit numbers seven men on the faculty of the Medical School, all of whom are members of the School's isotope committee. Unit chairman is Dr. Howard L. Alt, associate professor of medicine. Others are Dr. Earl Barth, associate professor of radiology and chief of the radiology service of Wesley Hospital; Dr. Cooper; Chester Farmer, professor of chemistry and chairman of the department in the Medical School; Dr. Smith Freeman, professor of experimental medicine and chairman of the department, who is a member of the isotope committee at the Veterans Administration Hospital at Hines, Ill.; Dr. George V. LeRoy, assistant professor of medicine; and Dr. Ray S. Snider, associate professor of anatomy.

Drs. Alt, Barth, Cooper, Farmer and Freeman are participating institution members of the Argonne Laboratory. Dr. Snider is consultant to the biological division at Argonne. Dr. LeRoy is acting director of the radioisotope unit at Hines.

Nursing Education.—Advanced work in nursing education for nurses training to enter institutional positions or public health will be offered in the summer session at the University of Chicago. Planned primarily to afford opportunities for advanced study to graduate nurses, the program is divided into two five-week terms, June 28 to July 29 and August 1 to September 3. Courses to be included in the summer quarter are an introduction to the study of nursing education, current trends in nursing, teaching professional problems, community nursing, introduction to the study of nursing education, principles of public health nursing, teaching of health, special fields in public health nursing, ward management and teaching, evaluation of nursing procedures, construction and use of achievement tests in nursing, apprentice teaching, teaching nursing in the clinical fields, maternity nursing, nursing care of children, social case work, teaching nursing arts, supervision in clinical nursing, supervision in public health nursing, supervision or administration in public health nursing, curriculum in nursing education, and problems in nursing education. Related courses also are offered in the fields of business, home economics, physiology, and education. Information and admission application blanks may be obtained from the Nursing Education Office, 5733 University avenue, The University of Chicago, Chicago 37, Illinois.

Care Given to Navajo Children.—Six Navajo crippled children from Arizona and New Mexico in need of specialized medical care and hospitalization will be treated this year at the Home for Destitute Crippled Children, which is affiliated with the University of Chicago Clinics, William Burry, Jr., president of the Home, announced recently.

A mercy project undertaken by the home to alleviate the suffering of the most difficult and complicated cases among the more than 500 crippled Navajo children, the service is an extension of the Home's current year's program for 24 Alaskan crippled children.

During the last year, 251 children from Chicago were admitted to the Home for 13,141 patient days of care. One hundred and fifty-five of the 251 Chicago children were part-pay or free patients.

Last April, the Home made provisions for two Alaskan children from the Division of Crippled Children of Alaska to be sent to Chicago each month for surgical and medical attention. Fourteen Alaskan children have been sent to date, and six have been returned to their homes.

"The Home for Destitute Crippled Children's project will help to meet the emergency situation of the Navajo crippled children," M. M. Stewart, general superintendent of the Navajo service of the Office of Indian Affairs of the Department of Interior, stated at the announcement of the program.

"Some of the crippled Indian children living in Arizona have been cared for through the Indian Service hospital at Phoenix, but there is no provision in the state to care for Navajos under the Crippled Children's division of the social security program," he added.

Children under 21 years of age will be admitted to the Home, and will remain in the clinics for four to six months for medical treatment.

DE WITT

New Health Officer.—Dr. E. M. Thompson, Lexington, Ky., has been appointed health officer of the De Witt-Piatt County health unit, it was announced by Dr. Hal E. Gronland, president of the bi-county board of health. Dr. Thompson suceeds Dr. Corrine S. Eddy who resigned recently. He has been health officer and director of field training at the Lexington-Fayette county health department in Kentucky for the past two and a half years.

MC HENRY

Society Election.—The following officers were elected at the annual meeting of the McHenry Society recently: Dr. C. E. Wittenberg, Woodstock, president; Dr. J. H. Goodlad, Harvard, vice president and Dr. B. B. Neuchiller, Woodstock, secretary-treasurer.

SHELBY

Completes Sixty Years of Practice.— Dr. J. H. Donovan, Windsor, completed sixty years in the practice of medicine, March 5. Fifty-seven years have been spent in Windsor where he came from Lovington. Dr. Donovan holds membership in the Fifty Year Club of the Illinois State Medical Society.

UNION

Society Chooses Officers.—Dr. John Merideth, Cobden, was elected president at a recent meeting of the Union County Medical Society. Other officers elected were Dr. W. A. Schroeder, Anna, vice president and Dr. E. V. Hale, Anna, secretary-treasurer.

UNION

Welfare Department Holds Conference.—A graduate conference for physicians was held by the Illinois Department of Public Welfare at the Anna State Hospital in Anna, April 14, with the following speakers participating: Dr. Ben W. Lichtenstein, Chairman, program committee; Dr. Groves Smith, Godfrey, "The Sexual Psychopath"; Dr. V. G. Urse, Chicago, "Treatment of Nervous and Mental Disorders"; Dr. A. H. Rosenblum, Chicago, "An Internist Looks at Psychsomatic Medicine"; Dr. A. J. Arieff, Chicago, "A Psychiatrist Looks at Civil Offenses"; Dr. F. P. Bornstein, Herrin, "Organic Phase of Psychoses"; Dr. C. D. Nobels, superintendent, Anna State Hospital; and Dr. Roland M. Klemme, St. Louis, "The Treatment of Parkinsonism".

GENERAL

Conference on Nervous System.—Six scientists from five foreign countries accepted the invitation to attend a conference on development, growth and regeneration of the nervous system, held by the International Union of Biological Sciences at the University of Chicago, March 21-25.

Participating in the meeting, which was sponsored by UNESCO and the Rockefeller Foundation, were: J. Boeke, Utrecht; Dr. Holger Hyden, Stockholn; Dr. Rita Levi-Montalcini, Torino; Alberto Stefanelli, Rome; Sydney Sunderland, Melbourne; and J. Z. Young, London.

The present state of knowledge of the nerves and the evaluation of progress was analyzed by the conference members. A final summary meeting on March 25, was open to all interested scientists.

Subjects discussed during the conference included: "Differentiation of the Central Nervous System," "Nerve Fiber Orientation and Patterns", "Physiology of Neuron Growth", "Peripheral and Central Nerve Regeneration", "Problems of Specificity and Selectivity", and "Neural Growth and the Development of Behavior".

American members taking part in the conference were: Dr. D. H. Barron, Yale; Dr. David Bodian, Johns Hopkins; Dr. S. D. Delwiler, Columbia; Dr. L. B. Flexner, Carnegie; Dr. R. W. Gerard, University of Chicago; Dr. Viktor Hamburger, Washington University; Dr. Davenport Hooker, Pittsburg; Dr. W. H. Lewis, Wistar; Dr. F. O. Scmitt, Massachusetts Institute of Technology; Dr. C. C. Speidel, Virginia; Dr. Roger Sperry, University of Chicago; Dr. Paul Weiss, University of Chicago; and Dr. W. F. Windle, Pennsylvania.

Society for Handicapped.—The Annual Convention of the National Society for Crippled Children and Adults will be held November 7-9 at the Commodore Hotel, New York, according to an announcement made from Chicago headquarters by Lawrence J. Linck, executive director. Prominent authorities working in the field of the handicapped will present latest developments at the three-day session marking 28 years of service for the Society. Delegates from 2,000 state and local affiliates of the National Society will discuss research, rehabilitation, training and treatment for the handicapped.

Medical Use for Television.—An important medical disclosure involving a new use for television was revealed April 5 by the University of Illinois College of Medicine.

University investigators disclosed that television can be used to make x-ray films clearer, sharper and be of definite assistance in making a diagnosis.

The discovery of new possibilities of television stemmed from studies made by Craig W. Goodwin and Dr. John S. Garvin, in conjunction with Television Station WBKB, Chicago.

The significance and clinical application of the disclosure was pointed out by Dr. Roger A. Harvey, head of the University's department of radiology. He explained:

"X-ray films have been reproduced on television screens in the past in connection with transmission of surgical producers and clinical conferences. However, their inclusion has been incidental and little has been done to investigate the possibilities."

University researchers found that "an extremely high degree of accuracy" can be obtained in reproducing x-rays on television. By varying the density and contrast controls on the receiver, details and findings on the original film can be brought out much more clearly. For example, questionable shadow can be brought out in great detail, and both over and under-exposed film can be corrected.

Dr. Harvey said that in an x-ray film dealing with both bone and soft tissue structure, the radiologists were able to bring out the detail of both structures. He added that the television camera can magnify a small area of the receiving set.

When this procedure was employed in one of the experiments—in a routine check—the investigators found some small stones in the gall-bladder on a film which previously had been overlooked in the ordinary method of viewing.

In the experiments made with the cooperation of Station WBKB, the films were transmitted over a closed circuit so that they could be seen only on a set viewed by the investigators.

Dr. Harvey indicated that television, thus far principally a device for spreading entertainment, might become an important educational tool. He said that x-rays projected onto a television screen can be more easily studied and understood by students and doctors than can the original films even if viewed in the conventional illuminating box.

Television also may make it possible to bring skilled, specialized medical advice to the most remote communities. A small television camera, for example, could transmit by wire an x-ray to a large medical center for immediate consultation. Thus, in the case of an emergency, the physician on the scene would have expert advice quickly available.

Society of Illinois Bacteriologists Honor Dr. Koser.—The Society of Illinois Bacteriologists conferred its Annual Pasteur Award for outstanding contributions to the science of bacteriology on Dr. Stewart A. Koser, Professor of Bacteriology, The University of Chicago at a meeting of the Society on May 6, 1949.

Dr. Koser is well known throughout the world for his contributions in bacteriology. He was born in Harrisburg, Pennsylvania, and received his Ph.D. in bacteriology from Yale University. He served in the United States Army during the first World War, following which he became bateriologist in the United States Department of Agriculture at Washington, D. C. In 1923 he was appointed As-

sistant Professor of Bacteriology at the University of Illinois. He came to the University of Chicago in 1928. At present he is Professor of Bacteriology in the University of Chicago and also Professor of Bacteriology in the Walter G. Zoller Memorial Dental Clinic.

His chief research has included studies on the paratyphoid group of bacteria, food poisoning, and the growth requirements of bacteria. He has published about 75 scientific articles. He is on the editorial board of two scientific journals and has been elected Councilor of the Society of American Bacteriologists on two occasions. During 1943-44 he was President of the Society of Illinois Bacteriologists.

MARRIAGES

DR. FLOYD E. DUNCAN, Rushville, to Mrs. Ruth Lesage, Chicago, recently.

DEATHS

MAURICE P. APMADOC, Chicago, who graduated at Harvey Medical College in 1902, also a dentist, died recently aged 76, of arteriosclerosis and myocarditis.

KARL MIKAEL BECK, Waukegan, who graduated at Loyola University School of Medicine in 1918, died March 19, 1949, aged 56.

CHARLES F. CHILDS, retired, New Boston, who graduated at Kentucky School of Medicine, Louisville, in 1892, died April 1, aged 79, following a long illness.

THOMAS MARTIN EGAN, Chicago, who graduated at Bennett College of Eclectic Medicine and Surgery in 1915, died April 10, aged 56.

RHODA GALLOWAY-YOLTON, Bloomington, who graduated at Woman's Medical College, Chicago, in 1887, died in the Brokaw Hospital, Normal, December 23, aged 86, of myocarditis and arteriosclerosis.

EDWARD PHILLIP GRAMER, Chicago, who graduated at the University of Illinois College of Medicine in 1920, died November 25, aged 56, of myocardial infarction. He was associate clinical professor of surgery at Loyola University School of Medicine.

GEORGE D. J. GRIFFIN, Chicago, who graduated at Northwestern University Medical School in 1908, died March 27, on his 62nd birthday. He was clinical professor of surgery at Loyola University School of Medicine.

HARRY C. HILL, Streator, who graduated at Rush Medical College in 1894, died suddenly March 9, aged 80. He was an Emeritus Member of the Illinois State Medical Society.

OSCAR W. HUBBARD, Batavia, who graduated at Illinois Medical College in 1898, died recently, aged 84. He had practiced medicine for more than 50 years.

ALFRED EDWARD JONES, Chicago, who graduated from the University of Illinois College of Medicine in 1915, died November 10, aged 58, of chronic myocarditis.

MICHELANGELO PACELLA, Waukegan, who graduated at Chicago Medical School in 1922. Died in St. Theresa Hospital December 11, aged 78, of chronic nephritis and pneumonia.

OTTO S. PAVLIK, Oak Park, who graduated at Northwestern University Medical School in 1904, died March 29, aged 74.

"For The Common Good"

Health Education Over WGN-TV.—The public information service programs, launched by the Educational Committee of the Illinois State Medical Society in cooperation with WGN-TV, continues as a weekly feature over that station.

Each story is told graphically with the use of patients, models, equipment and demonstrations.

John L. Keeley, in his program, April 12, gave a touch of humor when he rattled a jar of gallstones to highlight "When Your Gallbladder Misbehaves."

David Slight used a funnel and water demonstration to emphasize uncontrolled emotions and energy, April 19, on the program "Your Emotions and Your Health."

Highlights of the May schedule will be given in the June issue of the Illinois Medical Journal. Scheduled shows are:

Charles D. Krause, May 3, So You're Expecting a Baby.
Gilbert H. Marquardt, May 10, Geriatrics and You.
Maurice Cottle, May 17, Breathe Through Your Nose.
Howard B. Carroll, May 24, Taking Care of Your Ulcers.

Dr. Theodore R. Van Dellen, Medical Editor of the Chicago Tribune, associate professor of medicine, Northwestern University Medical School, and newly appointed associate editor of the Illinois

Medical Journal, acts as physician-emcee on all programs.

Lectures Arranged Through the Scientific Service Committee of the Illinois State Medical Society; Robert S. Berhoff, Chicago, Chairman; Louis R. Limarzi, Chicago, Vice Chairman:

John L. Keeley, Chicago, Livingston County Medical Society in Pontiac, March 24, on Intestinal Obstruction, Illustrated.

Hugh M. Flack, Chicago, Fulton County Medical Society, Canton, March 31, on Cardiac Failure in Hypertension.

Ladislas J. Meduna, Chicago, Sangamon County Medical Society in Springfield, April 7, on Psychosomatic Medicine.

Percy E. Hopkins, Chicago, Winnebago County Medical Society in Rockford, April 12, on What is Being Done in the National Picture.

John W. Huffman, Chicago, Kane County Medical Society in Aurora, April 13, on Carcinoma of the Cervix.

Gilbert H. Marquardt, Chicago, Warren County Medical Society in Monmouth, April 13, on Anticoagulants.

Warren W. Furey, Chicago, Henry County Medical Society in Geneseo, April 14, on Acute Conditions of the Abdomen as Seen by the Radiologist.

Chester Coggeshall, Chicago, Northwest Branch, American Academy of General Practice, April 15, on Office Diagnosis of Diabetes.

Will F. Lyon, Chicago, Fulton County Medical Society in Watseka, May 31, on Hormone Prep-Bodies.

James H. Hutton, Iroquois County Medical Society in Watseka, May 31, on Hormone Preparations and Their Uses.

John R. Vonachen, Peoria, Bureau County Medical Society in Spring Valley, June 7, on Modern Trends in Pediatrics.

George H. Rezek, Chicago, Will-Grundy County Medical Society in Joliet, June 9, on Female Endocrines.

Archibald Hoyne, Chicago, Effingham County Medical Society, in Effingham, June 16, on The Known and Unknown in Poliomyelitis.

James J. Callahan, Chicago, Will-Grundy County Medical Society, June 23, in Joliet, on General Fractures.

Lectures Arranged Through the Educational Committee of the Illinois State Medical Society; Charles P. Blair, Monmouth, Chairman; Warren W. Furey, Chicago, Vice Chairman:

Charles J. Smith, Chicago, Dupage County Health Department, in Villa Park, March 29, on The Rh Factor.

Harold Rosenbaum, Chicago, Jackson Boulevard Christian Chuch, March 16, on Venereal Disease.

Leonard J. Murphy, Chicago Career Conference, Steinmetz High School, Chicago, March 22, Medicine as a Career.

Marc Hollender, Chicago, Twelfth District, Illinois Federation of Women's Clubs in Morris, April 1, Growing Old Gracefully.

Frank Deneen, Bloomington, Adult Education Program, Odell Community High School, Odell, April 5, on Heart Disease.

Charles J. Runner, Chicago, Olivet Baptist Church in Chicago, April 10, on General Health.

John A. Rogers, Chicago Woman's Auxiliary, Chicago Medical Society, April 12, on Cancer.

Murray Nierman, Calumet City, film on Human Reproduction before the Calumet City Young Woman's Club, April 19.

Walter R. Kirschbaum, Club Oasis, in Chicago, April 24, on Psychosomatic Medicine.

Groves B. Smith, Godfrey, April 5, Salem High School on Mental Hygiene Aspects of School; Salem Woman's Club, Mental Problems within the Community, and Lions Club, Mental Hygiene in Relation to Community Planning.

Joseph Bertucci, Chicago, Frederic Chopin School PTA in Chicago, May 5, Health of the School Child.

Ben Park, Radio Director, It's Your Life, Chicago Industrial Health Association, the Chicago Pediatric Society, May 24, on The Story of It's Your Life.

Warren H. Cole, Illinois State Nurses Association in Ottawa, June 2, on Socialized Medicine.

routine for discovery

The national total of undiagnosed or "unknown" diabetics may run from a million to two or even three.[1,2] Modern treatment, when promptly initiated, can do much to prevent metabolic decompensation and to minimize diabetic complications. Therefore, the clinical revealment of diabetes mellitus at an early stage is essential.

Thus, "all patients who present themselves to the physician for an examination should have a routine urine examination."[3] In this phase of practice, the advantages of *Clinitest*® tablets for urine-sugar analysis are considerable.

Clinitest is dependably accurate, yet it takes only a few seconds to perform. The test is simple—no external heat need be applied; interpretation is by direct color comparison. *Clinitest* is convenient both for the doctor's office routine and for the diabetic patient's prescribed sugar-level checkups.

(1) Joslin, E. P.: Postgraduate Med. 4:302 (Oct.) 1948. (2) Kemper, C. F.: Rocky Mountain M. J. 45:1092 (Dec.) 1948. (3) Pollack, H.: New York Med. 4:15 (Dec. 5) 1948.

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PHYSICAL MEDICINE ABSTRACTS

JOHN S. COULTER, DEPARTMENT EDITOR

A STUDY OF FASCICULATIONS

Harry A. Teitelbaum, M.D., Ph.D., and H. Waldo Bird, M.D. In THE JOURNAL OF NERVOUS AND MENTAL DISEASE, 108:6:455, December 1948.

The well-intrenched concept that fibrillations and fasciculations have their origin in anterior horn cells that are undergoing an irritative degeneration has not withstood the onslaught of recent investigation very well. From the studies of Langley and Kato (1914-15) it became evident that fibrillations occur spontaneously in muscle on the fourth or fifth day following section of the nerve supply. Denny-Brown and Pennybacker (1938) confirmed the above, and suggested that these fine, rhythmical twitches could be due to sensitization of the denervated muscle fibers to the normal acetylcholine content of the ciruclation. These authors proposed that these fine movements be designated as fibrillations in contradistinction to the coarser types seen clinically, and to which they refer as fasciculations. Tower (1939) is, however, not certain that this distinction is justified. And more recently, Forster, Borkowski and Alpers (1946) have concluded that "fasciculations and fibrillations probably represent the same phenomenon, the only difference being that fasciculations are synchronized fibrillations occurring in the same motor unit." In this paper the term, fasciculation, will be used in a broad sense, referring to all muscle twitches recorded in the electromyogram.

The incident of fasciculations in cases of progressive muscular atrophy, triorthocresyl phosphate poisoning and diffuse encephalomyelopathy of a nonspecific nature, has been studied. Spinal anesthesia and peripheral nerve block had no effect on the fasciculations in the cases of progressive muscular atrophy, and in that of encephalomyelopathy; but in the case of triorthocresyl phosphate poisoning, spinal anesthesia had a striking inhibitory effect. Intocostrin successfully abolished the fasciculations present in the three types of cases, while prostigmine increased the fasciculations in the two cases of progressive muscular atrophy. The observations reported are integrated with the findings of previous investigators in this field, and the possible mechanisms by means of which several specific drugs act, are elaborated on to some degree. All of the data are employed in an effort to elucidate the problem of the site or sites of origin of fasciculations.

THE CONTROL OF CIRCULATION STASIS BY *THE ELECTRICAL STIMULATION OF LARGE* MUSCLE GROUPS

Frank L. Apperly, M.D., D.Sc., F.R.C.P. and M. Katharine Cary, A.B., Instructor in Pathology, Richmond, Virginia. In THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, 216:4:919:403, October 1948.

The various causes of circulatory failure in-

(*Continued on page* 42)

MEAT...
and Physical Rehabilitation

Any marked loss of weight in the nonobese patient deprives the organism of a considerable amount of protein, apt to lead to severe protein deficiency. A weight loss of 5 Kg. does not appear large as such. Yet it is estimated that it may well entail a simultaneous loss of as much as 900 Gm.—or two pounds—of tissue protein,* taken from the scant protein stores of the body, from the muscles, liver and other viscera. Prevention of such large protein losses or rapid replacement of depleted protein stores is imperative. Nitrogen balance must be re-established as quickly as possible to promote local healing and general recovery in many surgical conditions, in severe burns, in metabolic disturbances, and following overwhelming infections.

Meat as the primary source of protein affords a number of special advantages in the period of actual dietotherapy as well as during recovery and rehabilitation. It is of excellent digestibility so that it can be easily eaten two or three times a day to satisfy increased protein requirements.

The appetizing taste appeal encourages simultaneous intake of other valuable foods, especially desirable in the presence of anorexia.

All meat is notably rich in biologically complete protein, from 17 to 20 per cent of its uncooked and from 25 to 30 per cent of its cooked weight. Furthermore, meat ranks with the best sources of B-complex vitamins and iron, important nutrient factors in physical rehabilitation.

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*Meyer, K. A., and Kozoll, D.D.: Progress in the Treatment of Carcinoma of the Stomach and Esophagus, South Dakota J. Med. & Pharm. 2:39 (Feb.) 1949.

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clude loss of blood volume, failure of cardiac, muscle or respiratory pumps and the loss of vascular tonus. Although a vast amount has been written concerning most of these, it is only in recent years that we have begun to appreciate the role of the muscle pump, particularly as regards stagnation of blood in the lower limbs and the relation of this condition to post-operative shock and thrombosis with pulmonary embolism.

A simple method of aborting or preventing the peripheral circulatory failure of gravity shock has been described. The method is now being applied in this hospital: (a) in the treatment of traumatic shock, and (b) as a preventive of post-operative shock, venous stasis and thrombosis. To date, some 60 patients have been treated, but these numbers are too small to warrant conclusions. It is hoped, however, that the method will be tried and reported in other hospitals.

RECENT ADVANCES IN RESEARCH AND TREATMENT OF MULTIPLE SCLEROSIS

I. Mark Scheinker, M.D., In THE OHIO STATE MEDICAL JOURNAL, 45:1:27, January 1949.

Multiple sclerosis was considered by its first describers, of almost a century past, as something of a curiosity. With advancement in knowledge of the disease and with progressive refinements in diagnosis, it is recognized today as one of the commonest among neurologic diseases.

Three new avenues of research, crystalized during the last decade, are briefly summarized.

A clinical study of a series of 40 cases of multiple sclerosis yielded the following observations:

1. The large majority of cases of multiple sclerosis show a marked degree of arterial hypotension. Repeated measurements yielded systolic and diastolic pressures far below normal values.

2. A striking myasthenia-like fatigability of the skeletal muscles is an extremely frequent complaint of most patients. Almost without exception, they seem to have some degree of muscle power in the early morning hours, becoming increasingly weak and tired throughout the remainder of the day. The rapid loss of muscle power may, in some cases, be easily recovered after a short period of rest. Difficulties in walking, speech disturbance, tremor and locomotor ataxia, as well as difficulties in swallowing, become more pronounced in the afternoon and evening hours.

3. A striking influence of morale and emotional factors upon the extent and severity of symptoms is evident. A large proportion of cases of multiple sclerosis are in a permanent state of anxiety and tension, and show a dire need for help and guidance. The initial success of any "new" treatment applied to patients afflicted with multiple sclerosis is based primarily upon this craving for guidance and a marked susceptibility to suggestive psychotherapy.

On the other hand, there is a striking correlation between emotional instability and the severity of a given symptom or symptoms.

All these clinical-pathologic observations were taken into consideration in formulating the procedure of treatment. The therapeutic measures advocated may be divided into:

1) Those founded upon the author's theory of the pathogenesis of the disease. They are aimed at elevation of blood pressure and stimulation of circulation for the purpose of counteracting the vasoparalytic vascular phenomena which result in stasis and thrombosis of some of the small cerebral veins and capillaries.

2) Therapeutic measures aimed at alleviating the myasthenia-like fatigability and muscle weakness. Excellent results have been obtained in a number of cases with generous administration of prostigmin.

Supplementing the generous use of prostigmin, there are prescribed daily muscle exercises as a part of a broad plan of muscular re-education and rehabilitation. A large series of muscle exercises were developed, and these are prescribed individually, depending upon the disabilities of each patient. They have proved effective in a number of cases in the restoration of muscle power and in facilitating recovery in function of the weakened limbs. Needless to say, while patients with less pronounced weakness have revealed relatively rapid beneficial results and considerable improvement, the response in patients with severe and longstanding paralysis has been much slower and less satisfactory.

(*Continued on page* 44)

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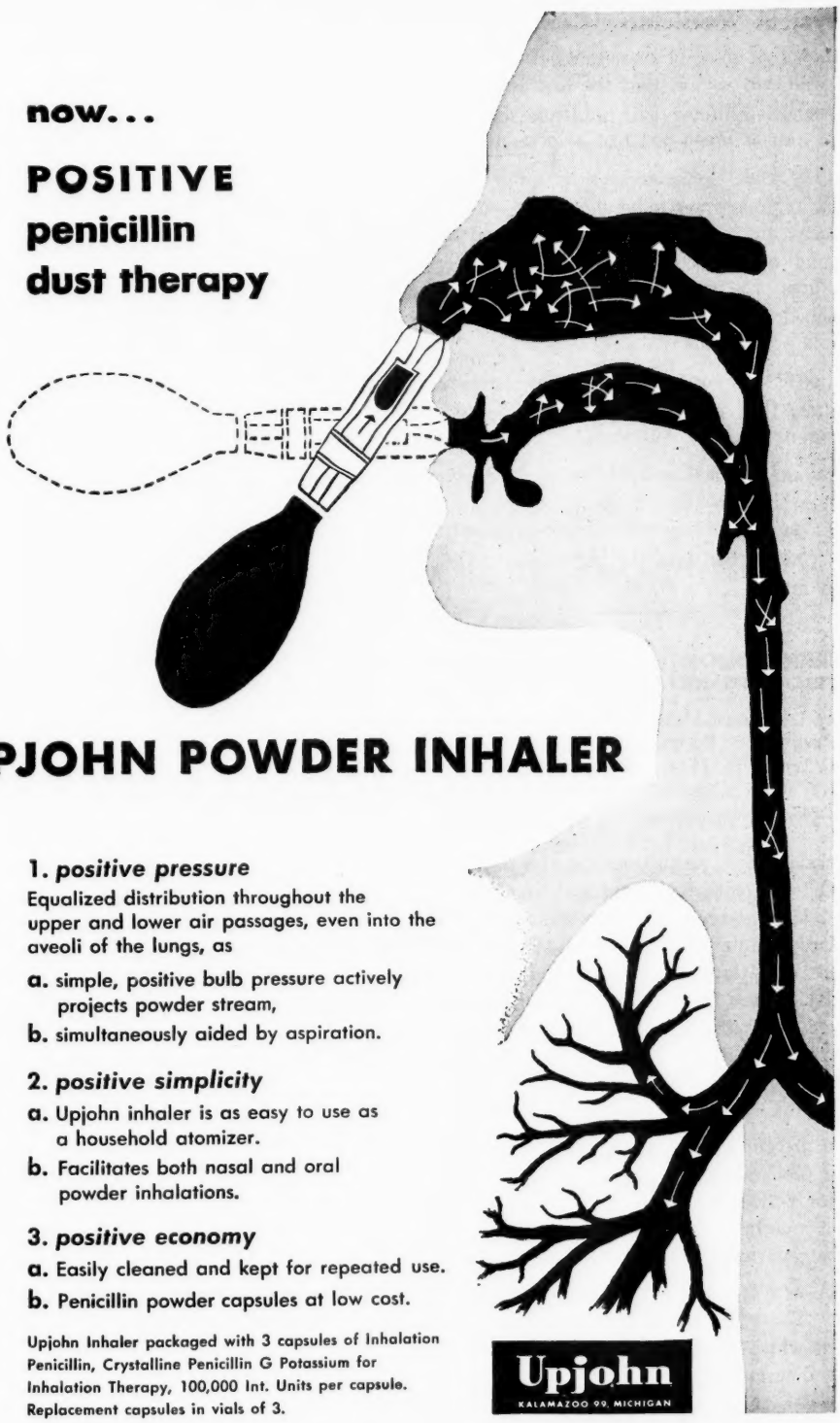

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I know that some of these measures will shock those who still believe that the best thing to do for a patient afflicted with multiple sclerosis is to give him as much bed rest as possible.

In my own experience this unfortunately popular regime serves to accelerate the weakness, spasticity, and uselessness of the involved muscles, and at the same time has a disastrous effect upon the morale of a patient who feels abandoned and deprived of any hope of active help.

3) Finally, but not least, a series of therapeutic measures, that may be summarized under the heading of "morale building."

Like any other serious personal problem, multiple sclerosis should be presented to the patient as a not-hopeless challenge requiring active cooperation with the physician.

ANTERIOR POLIOMYELITIS; EARLY AND LATE ELECTRICAL STIMULATION OF THE MUSCLES

Stafford L. Osborne, Ph.D., A. J. Kosman, Ph.D., H.D. Bouman, M.D., Robert T. McElvenny, M.D., and A. C. Ivy, Ph.D., M.D., Chicago, Illinois. In "SURGERY GYNECOLOGY AND OBSTETRICS" 88:2:243, February 1949.

Sachs in 1910 wrote that the aim of therapy for the patient with anterior poliomyelitis should be to exercise muscles which cannot be exercised voluntarily. For this, he recommended the use of a form of electrical current which would yield the best contraction with a current of moderate strength. Williams and Levick concurred and maintained that the treatment should be applied early after the diagnosis of the disease.

The present article represents the application of our observations on animals to patients with anterior poliomyelitis. The results on patients with a muscle denervated by section of a nerve will be reported later.

1. A new type of generator was used in this study. The generator supplied a pure sinusoidal current which could be varied at will from two to six thousand cycles per minute.

2. The maximum contraction and tension can be secured in paralyzed muscle with a minimum current intensity when consideration is given to both current form and current frequency.

3. Children from 2 to 16 years of age and afflicted with anterior poliomyelitis were given vigorous muscle contractions, and tolerated the the current well.

4. Electrical stimulation of the muscles was given to 7 patients as soon as the diagnosis of anterior poliomyelitis was made (the "early" group). Thus treatment can be instituted during the acute phase of the disease without injury to the muscles or the patients. It was also given to 13 patients who had the sequelae of the disease from 6 months to 6 years (the "late" group).

5. In both groups of patients the bulk of the muscles stimulated daily was favorably affected. There was a statistically significant increase in size of the treated muscles for the "late group." In the "early group" where the initial limb measurements were taken before much atrophy had occurred, the mass of the treated muscles was definitely maintained.

6. There was some improvement, though not statistically significant, in the strength of the muscles stimulated.

7. Electromyographic evidence in the "late" cases suggests that electrical stimulation may be of value in helping to restore normal innervation patterns of the involved muscles.

8. There was some evidence, though less tangible, that stimulation of the muscles was a distinct aid in helping the patient to gain a sense of muscle action needed, and that this was an aid in the re-education of the muscle when active exercise was attempted.

9. Treatment should start, according to our results, as soon as the diagnosis of anterior poliomyelitis is assured. However, in selecting muscle for purpose of studying a treatment, 1 or 2 months should elapse after the onset of the disease.

10. The rationale for the use of electrical currents in the stimulation of muscle is discussed.

THE BROADENING HORIZONS OF REHABILITATION AND PHYSICAL MEDICINE

Howard A. Rusk, M.D. In ARCHIVES OF PHYSICAL MEDICINE, 30:1:26, January 1949.

One of the first schools to teach rehabilitation

(*Continued on page* 48)

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Physical Medicine (Continued)

and physical medicine as the "third phase of medicine," is New York University, where a Department of Rehabilitation and Physical Medicine has been in existence for two years as a major department of the college. Major activities of the department are training, research and patient care, through the use of the teaching facilities of the College of Medicine the rehabilitation and physical medicine service at Bellevue Hospital, and the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center.

"This is how the grand socialistic ideal of the Minister of Health, 'taking the money factor out of medical treatment,' works. All of these troubles of the National Health Service are the result of forcing such a complex thing as medical practice into the rigid framework of socialism."

We are well aware of the penalties of delay in diagnosing tuberculosis. Undiscovered, the disease progresses, often to the point of hopeless intractability; unchecked, it spreads freely; and unrecognized, it breeds new cases. If we are to succeed in controlling tuberculosis, this is exactly what must not continue to occur. Francis J. Weber, M.D., Pub. Health Rep., Oct. 1, 1948.

One of the most significant recent advances of the improved tuberculosis case-finding procedure is the program to give a routine chest film to all hospital admissions. As people enter hospitals for reasons of illness, a higher incidence of tuberculosis than that found in the general population may be expected. The U. S. Public Health Service reports this to be twice as much. Approximately 10 per cent of the general population are annually admitted to public hospitals. This large, easily accessible group offers an ideal opportunity for the discovery of unsuspected tuberculpsis. S. A. Holling, M.D., Canad. J. Pub. Health, Jan., 1949.

There are many features in a good tuberculosis control program, but all of them are based on the fundamental principle that tuberculosis is contagious, and that the patient who has the germs in his sputum, or who shows X-ray evidence of progressive disease of the lungs such that the sputum is likely to become positive, must be isolated from his family and from the community in a tuberculosis hospital or sanatorium where strict bed-rest, good diet, and special surgical procedures in selected cases, can be provided to stop the advance of the disease and render him non-infective. Miriam E. Brailey, M.D., Baltimore Health News, Nov., 1948.

Optimal Nutrition

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SALT SUBSTITUTES POISON 12, DOCTORS REPORT

Three deaths and nine additional known cases of poisoning among persons using salt substitutes containing lithium chloride have been reported from Cleveland, New York, and Beverly Hills, The Journal of the American Medical Association reports in its March 12 issue.

Two deaths reported by Cleveland doctors were attributed at least partially to "West-Sal," a liquid salt substitute preparation containing lithium chloride. Five cases of poisoning reported by Cleveland doctors and one case of poisoning occurring at the Cedars of Lebanon Hospital, Los Angeles, reported by a doctor from Beverly Hills, were attributed to "West-Sal."

The Cleveland doctors did not say where the deaths and cases of poisoning they reported actually occurred.

The third death and two cases of poisoning occurred at Bellevue Hospital, New York. New York doctors reported one additional case of poisoning, but did not say where it occurred.

Preparations similar to "West-Sal" that have been available include "Food-Sal," "Salti-Salt," and "Milosal."

All salt substitutes containing lithium choride have been recalled from the market by the U. S. Food and Drug Administration, following the recall of "West-Sal" and a general warning issued by the A.M.A. three weeks ago.

No salt substitute containing lithium chloride has been approved by the A.M.A., either by the Council on Pharmacy and Chemistry or by the Council on Foods and Nutrition.

Although potassium salts and other substances besides lithium have been employed for many years as substitutes for ordinary table salt without producing detrimental effects, their use has proved unsatisfactory from the standpoint of taste and some authorities believe they require further study before they should be recommended as entirely harmless.

The lithium preparations, used in both powder and liquid form to provide flavoring in food for persons on diets in which salt is restricted, were sold at drug and grocery stores.

Sodium depletion in persons on a low salt diet apparently increases their susceptibility to poisoning from lithium salts, doctors observing the cases of poisoning indicate.

Early symptoms of lithium poisoning are similar to the symptoms of heart and kidney diseases which require a salt free diet, and include drowsiness, weakness, loss of appetite, nausea, tremors, and blurring of vision, The Journal emphasizes.

Persons who have used the lithium preparations for long periods of time may be given a solution of sodium chloride (common salt) under a doctor's supervision, provided that their medical problems will permit such treatment, the doctors suggest.

The value of sodium chloride in eliminating lithium from the body has not been shown conclusively.

(*Continued on page* 54)

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Salt (Continued)

Doctors from Cleveland reporting on cases are A. C. Corcoran, R. D. Taylor, and Irvine H. Page, of the Research Division and the Frank E. Bunts Institute, Cleveland Clinic Foundation.

Four cases of poisoning, among which there was one death, are reported by Drs. Lawrence W. Hanlon, Mason Romaine III, and Frank J. Gilroy, from the Electrolyte Laboratory, Second Medical Division, Bellevue Hospital, New York, and Dr. John E. Deitrick, Chicago, Director of Study for the Survey of Medical Education, sponsored by the A.M.A. Council on Medical Education and Hospitals and by the Association of American Medical Colleges.

Dr. Deitrick was formerly director of the Second Medical Division, Bellevue Hospital, and Associate Professor of Medicine, Cornell University Medical College, New York.

One case of poisoning from which the patient recovered is reported by Dr. Robert L. Stern, Beverly Hills.

Suspicion that lithium chloride might be the cause of poisoning was aroused by symptoms of a 70 year old woman under treatment for heart disease and hardening of the arteries, the Cleveland doctors say.

She was seized with giddiness and nausea in August, 1948, the day after eating a stew seasoned with "West-Sal," and had been on a low-sodium diet since December, 1947. She had been using a salt substitute containing lithium chloride since December, 1947 and had been using "West-Sal" since May, 1948.

During the 24 hours following her first illness from lithium chloride, she showed mental confusion, apathy, and tremor of her arms and legs. She was admitted to a hospital August 7, and became comatose August 8. A neurologic consultant suggested that strychnine poisoning, tetanus, or tetany should be considered.

By August 11 she had cleared mentally, and she improved rapidly during the succeeding days. August 14 she was discharged in good condition, and she continued to be well for the next 10 days.

She resumed her former diet and use of "West-Sal," and again tremor, confusion, and apathy developed. She passed into coma and died August 27, 1948.

Similar symptoms of another elderly woman with heart disease and on a low sodium diet confirmed the Cleveland doctors' suspicion that lithium chloride was poisonous.

The second woman was admitted to a hospital September 18, 1948, and began to use "West-Sal" the following day. She continued to use the salt substitute in excessive amounts and showed confusion, blurring of

(*Continued on page* 56)

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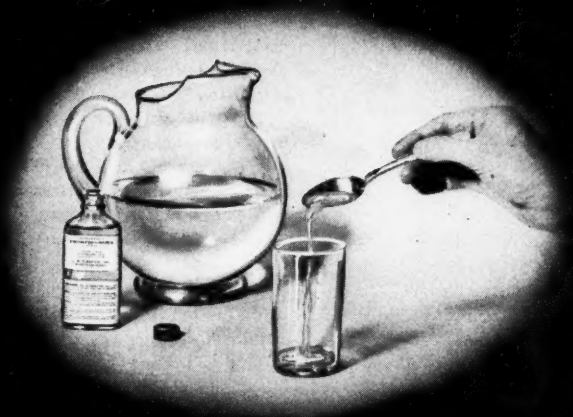

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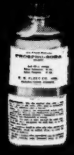

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vision, tremor, and instability in walking. She passed into coma October 5 and died October 12.

The other cases of poisoning from "West-Sal" reported by the Cleveland doctors were of a woman 51 years of age with heart disease and diabetes, a man 35 years of age with kidney disorder, and three men, 42, 46, and 47 years of age with severe high blood pressure.

The woman recovered, although she became comatose. She was treated with sodium chloride solution, and was discharged from the hospital with all symptoms of poisoning relieved nine days after the treatment. She had developed symptoms on the 10th day after beginning to use the salt substitute and lapsed into coma the following day.

The man with kidney disorder did not develop symptoms until the 22nd day after beginning to take "West-Sal," and he continued to take it 21 days more. He did not lose consciousness and seemed completely recovered from poisoning seven days after stopping "West-Sal."

The 47 year old man did not develop symptoms of poisoning until he had been taking "West-Sal" more than two months, averaging 4½ ounces of the preparation each month. He continued to take "West-Sal" two months after beginning to develop symptoms, but apparently recovered from the poisoning two days after he stopped using "West-Sal."

The other men developed symptoms on the third and fifth days after beginning "West-Sal," stopped taking it four and six days later, and seemed completely recovered from poisoning 11 and seven days afterward.

Two of the Cleveland patients were seriously ill from eating less than 1/5 of an ounce each of lithium chloride.

Salt substitutes which do not contain lithium chloride but do contain potassium salts may be poisonous to patients with improper kidney function, the Cleveland doctors say. Many patients on the rice diet for high blood pressure do not have proper kidney function, they emphasize.

The New York doctors, whose study of salt substitutes was supported by a grant from the U. S. Public Health Service, point out that lithium poisoning may develop insidiously in a patient taking small doses of lithium chloride over a long period of time, or may be sudden and acute following consumption of relatively large amounts of the substance.

Lithium is rapidly absorbed by the body and may affect the central nervous system, the digestive system, and the heart, they say.

The first case of poisoning from lithium chloride re-

(Continued on page 58)

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1. Horton, B. T., Ryan, R. E. & Reynolds, J. L., Proc. Staff Meet. Mayo Clinic, 23:105, Mar. 3, 1948.
2. Friedman, A. P., N. Y. State Jl. of Med. (in press).
3. Ryan, R. E., Postgraduate Medicine (in press).
4. Hansel, F. K., Annals of Allergy (in press).

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ported by the New York doctors was of a 58 year old man who had lung disease and heart disease associated with hardening of the arteries. He was admitted to Bellevue Hospital in October, 1948, and placed on a low salt diet and a rice diet.

After 36 days in the hospital, his heart condition apparently was much improved. He was given lithium chloride to season his food, and he used the substance liberally. The third day after lithium was begun, he complained of generalized weakness, and the following day the weakness was more pronounced and tremor and nausea were present.

Although lithium was discontinued, the symptoms were worse the next day. He became extremely lethargic, slept continuously, and became confused and disoriented. The sixth day after he began taking lithium chloride he was given dextrose in sodium chloride solution, but later in the day he became comatose. Two days afterward, he died.

"We are of the opinion that the toxic effects of the excessive amount of lithium chloride (nearly ½ an ounce in 72 hours) ingested by the patient contributed to, if they did not actually cause, his death," the New York doctors say.

Other cases reported from New York were those of a 60 year old man, a chronic alcoholic addict, believed to have cirrhosis of the liver, who was admitted to Bellevue Hospital in August, 1948; a 60 year old man who entered Bellevue Hospital because of heart disease; and a 69 year old man treated outside a hospital for heart disease associated with hardening of the arteries and high blood pressure. All three recovered from the poisoning.

The last of these cases illustrates the more insidious effect of smaller dosage over a longer period of time.

This patient used slightly less than two ounces of lithium chloride in his food over a 114 day period. He was on a restricted salt diet. About two weeks after beginning to take lithium chloride, he noticed lethargy and irregular tremors of his hands. Four weeks later, the tremors became more general, his speech became slurred, and he was extremely weak.

He was examined by numerous physicians and various medicines were given, to no avail. Finally, lithium chloride was discontinued. For three days the tremor became worse, but 10 days after lithium chloride was discontinued, his only symptom of poisoning was a faint tremor, the New York doctors say.

The case reported from Beverly Hills was of an 82 year old man "previously rather vigorous, quick, and alert," Dr. Stern says.

The patient was hospitalized January 9, 1949, at the Cedars of Lebanon Hospital, Los Angeles, for conva-

(*Continued on page* 60)

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lescence from fractured ribs, kidney disease, bronchopneumonia, and heart disease.

His convalescence proceeded well, but January 12 he was put on a low salt diet and given "West-Sal" to season his food. From January 12 to January 17, when "West-Sal" was discontinued, he used about half a bottle, or about 1¼ ounces, of the liquid.

On January 16 and 17 he appeared depressed and a little feeble and his appetite was not good. During the next three days he became extremely depressed, feeble, and nauseated.

The following three days he became even weaker, slept most of the time, and answered incoherently to simple questions. January 24 he became more alert and rational, and thereafter improved steadily and rapidly.

February 4 he was alert, cheerful, and full of ambition again. He made a complete and rapid recovery from the poisoning, Dr. Stern says.

NEW SYNTHETIC DRUG USED AGAINST PARKINSON'S DISEASE

Parpanit, a relatively new synthetic drug, is aiding victims of Parkinson's disease, also called the shaking palsy.

Writing in the March 5 issue of The Journal of the American Medical Association, Robert S. Schwab, M.D., and Denis Leigh, M.D., from the Department of Neurology and Psychiatry, Massachusetts General Hospital and Harvard Medical School, and the Brain Wave Laboratory, Massachusetts General Hospital, Boston, report on a study of 50 patients with Parkinson's disease treated with parpanit tablets.

Parpanit is one of the most efficient and least toxic of a number of related compounds developed in Switzerland. The drug has desirable relaxing effects similar to derivatives of belladonna.

Thirty-one of the group experienced more improvement from parpanit than they did from previous treatment with scopolamine, stramonium, or belladonna, other drugs used against the disease.

The degree of improvement during parpanit therapy was usually about 25 per cent. Approximately half the 50 had a decrease in rigidity with increased freedom or speed of movement and greater ease in eating and talking, and about half noticed a decrease in tremor.

In 40 per cent of the group, symptoms had been present from one to five years, in 32 per cent from five to 10 years, and in 28 per cent over 10 years. There was a fairly close connection between the duration of symptoms and severity of the disease.

None of the 50 patients was bedridden. Four additional bedridden patients with Parkinson's disease treated with parpanit were not significantly benefited.

The disease developed following encephalitis in 38 cases and was associated with hardening of the arteries in seven cases.

No change from parpanit therapy was noticed in 11

patients, the effect of the drug being similar to that of previous treatment with scopolamine or stramonium. Eight were considered worse after parpanit therapy.

Duration of treatment was from three to 12 months, except that eight patients for whom the treatment was considered a failure received parpanit less than three months.

Although toxic effects of the drug occurred in two thirds of the group, in only one fifth was it necessary to stop treatment because of such reactions. The commonest complaint was giddiness, and others were of nausea and a burning sensation in the upper abdomen, the article indicates.

"Parpanit would appear to be equally valuable in postencephalitic parkinsonism and paralysis agitans, but of doubtful value in parkinsonism associated with arteriosclerotic disease. Patients in this group were unable to tolerate the drug," the doctors say.

To test the effectiveness of parpanit, the doctors substituted—without the patients' knowledge, at intervals during treatment—capsules of scopolamine, stramonium, and calcium lactate, a harmless and ineffective substance.

The possibility that improvement was caused by a psychological effect of treatment was ruled out by the response of patients to the calcium lactate capsules, or placebos.

"Patients who were doing well with parpanit and were happy with the improvement would suddenly find on switching unknowingly to the placebo that all their symptoms returned suddenly," the doctors point out.

Improvement was judged from reports of the patients; reports of their relatives; appearance and posture of patients; patients' performance in daily life, such as their ability to shave, eat, dress, walk, climb stairs, and work; patients' speed of movement; neurologic examination; handwriting of patients; recording by tracing of the electric currents set up by patients' muscular action; patients' reactions to the substitution of other drugs and placebos; and opinions of medical observers other than the authors.

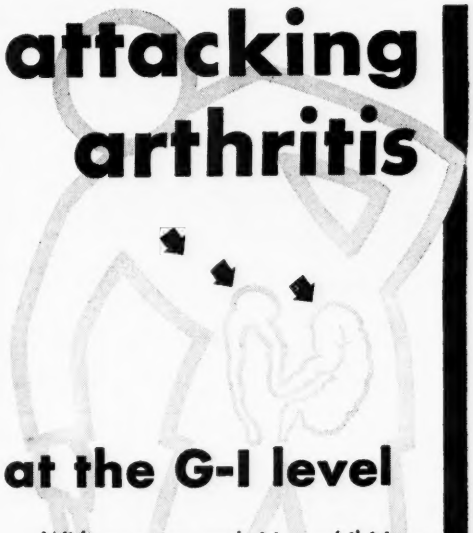
AMERICANS BETTER NOURISHED THAN IN PREWAR YEARS

The American people are decidedly better nourished than they were before World War II, despite the high cost of living, according to a report of the Council on Foods and Nutrition of the American Medical Association.

The report, appearing in the February 26 issue of The Journal of the American Medical Association, was written by Esther F. Phipard, Ph.D., and Hazel K. Stiebeling, Ph.D., Washington, D. C.

The average nutrient level in this country dropped somewhat in 1948 from the peak reached in 1945 and 1946, but was still high enough to be a decided improvement over pre-war levels and "exceedingly liberal"

attacking arthritis



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Composition: Occy-Crystine is a hypertonic solution of pH 8.4, made up of the following active ingredients—sodium thiosulfate and magnesium sulfate, to which the sulfates of potassium and calcium are added in small amounts, contributing to the maintenance of solubility.

*Nuzum, F. R.: In Diseases of the Digestive System, ed. by S. A. Portis, Lea & Febiger, 1944.

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Nourishment (Continued)

compared to that of most other countries, the authors say.

One of the most important changes for improved nutrition in the diet of Americans is the increased use of milk, they report.

"Reenforcing the upward trend since 1909 in the consumption of milk products such as cheese, ice cream, and evaporated and dried milk, the use of fluid milk rose sharply during the early war years," they say.

"In terms of total milk equivalent, consumption of milk and its products other than butter averaged nearly three cups per day per person in 1945—as compared with less than two cups in 1909. As a result there was an increase of 40 per cent in the calcium content of the per capita food supply and a considerable increase in riboflavin."

Consumption of citrus fruit and of leafy, green, and yellow vegetables also has shown an upward trend during these years, according to the report.

"More than four times as much citrus fruit was consumed in 1945 as in 1909. Yearly per capita consumption of meat, poultry, and fish averaged 165 pounds or more in the period 1944 to 1947, compared with 137 pounds in the prewar years, 1935-1939," the authors say.

Consumption of grain products and potatoes has declined considerably since 1909, although the downward trend was arrested during the war years, when supplies of fat and sugar were somewhat restricted, they point out.

For several nutrients the most striking increase has come since 1940. Higher levels of vitamin A and ascorbic acid can be associated with the increased consumption of vegetables and fruits.

The greatest increases were in thiamine, niacin, riboflavin, and iron, which were higher by a third to a half than the prewar levels. About half of these increases were the result of enrichment of flour and bread, the authors say.

Diet of families whose income has failed to increase in proportion to the increase in food costs is deteriorating, however, the report indicates.

"Although in the country as a whole per capita incomes were more than twice as high in 1948 as in 1940, food prices also about doubled in that period. Food costs affect everyone, whereas not all families have shared equally in income advances. Consequently, large numbers cannot afford to buy the kinds and quantities of foods needed for good diets," the report says.

In 1948 a family of four would have had to spend 50 per cent of a $2,000 per year income on food to follow a low cost food plan prepared by the Bureau

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of Nutrition and Home Economics. In 1935, 35 per cent of the same income would have been required for food by a family of four following the plan.

"It is likely that thousands of families are spending a relatively large share of the family income for food at the expense of other needs, and that unless they spend this money in a nutrition-wise fashion, and so handle and prepare the food as to conserve food values to the utmost, diets are deteriorating accordingly," the authors emphasize.

The magnitude of the task which still lies ahead should not be underestimated. Tuberculosis even now takes more than 45,000 lives a year in our country, and is a serious cause of disability among men in the productive period of life. The disease still ranks high among the causes of death at most age periods. Louis I. Dublin, Ph.D., Health Progress 1936 to 1945, Metropolitan Life Insurance Co.

Eighteen cases of tuberculosis were discovered by the Los Angeles City Health Department and Board of Education in the first year of routine X-raying of all applicants for positions in the city's schools. California's Health, July 15, 1948.

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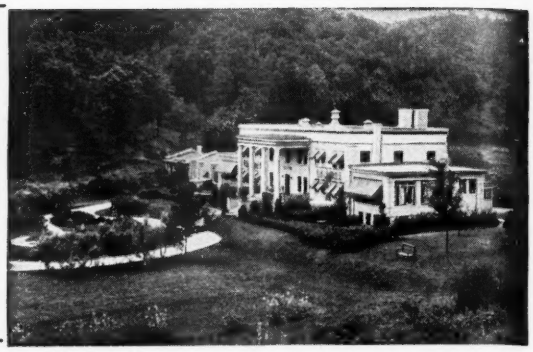

NEW FILM AVAILABLE

"The Function Of The Ear In Health And Disease", Edited by H. G. Kobrak, M.D., Ph.D., Joseph E. Hind and Robert B. Miller, M.D. is now available to medical societies.

The purpose of the film is to demonstrate the response of the ear to sound in health and disease. The range which the ear can perceive is demonstrated. The minimum and maximum intensity of sound recorded by the ear is shown. Pathology of the middle ear is demonstrated on diseased temporal bones. The vibrating ear drum after paracentesis is demonstrated. The inflation after Politzer and the effect on the ear drum is shown.

Hearing curves of certain types of deafness are shown and the response of the ear demonstrated. By using electronic filters, the sound perception of a diseased ear is given in the sound track similar to the actual hearing defect. Therefore the audience is able to see the pathologic function on the screen and simultaneously hear the distorted acoustic signal which the patient perceives.

The audiometric hearing curve of a patient obtained before fatal termination of his disease is shown. The acoustic vibrations of this diseased temporal bone are demonstrated.

The action of hearing aids and intensity changes due to the action of the hearing aid is demonstrated. The reflex of the middle ear muscles is demonstrated in animal experiments and in patients. The utilization of the stapedius reflex for objective hearing tests is demonstrated. Produced at the University of Chicago this is the first film of its kind ever attempted and successfully accomplished for visual education in otology.

The film is available to medical societies, hospitals, universities and professional study groups, without charge thru the Auralgan Research Division, 100 Varick St., New York 13, N. Y.

ARMY ANNOUNCES CHANGES IN MEDICAL AND DENTAL ROTC SUMMER CAMP PROGRAM

Certain changes in the Medical and Dental Reserve Officers Training Corps Summer Camp Program have been approved by the Department of the Army General Staff, it was announced this week by Major General R. W. Bliss, the Army Surgeon General. The changes effect only those students who are veterans of one year or more of active military service.

The new changes include (1) the use of Army General Hospitals instead of the Medical Field Service School for the summer training of qualified individuals;

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(2) the revision of the summer military training program for such individuals so as to place primary emphasis on military medicine, dentistry and surgery, and (3) a corresponding reduction in the number of hours devoted to essentially military subjects in that program.

The revisions will not effect those students who are not thus qualified by one year or more of active military service. As in previous years, they will attend the normal Medical and Dental ROTC Summer Camp conducted at the Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston, Texas.

The primary reason for the changes was recognition of the fact that veterans of one year or more of active military service are already qualified in most basic military subjects, and their reaction to refresher training in military subjects was not always conducive to the best interests of the program. Under the new changes this condition will be eliminated and these veterans will be free to utilize this training period in a manner more advantageous to both themselves and the Service.

Qualified medical and dental students will be sent to selected Army General Hospitals for a six weeks period during the summer instead of to the Medical Field Service School. During this period they will receive orientation in military matters but the major share of their time will be spent on the wards or dental clinics of the hospitals. They will also attend as many of the

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J. E. Hanger, Inc., Chicago 5 60

CLASSIFIED

Classified Advertisements 68

FOODS

American Meat Institute, Chicago 41

Borden's, New York 17 14

Coca Cola, Atlanta, Ga. .....

Mead Johnson & Co., Evansville, Ind. .. Inside Back Cover

National Confectioner's Assn., Chicago 2 57

Wander Company, 360 N. Michigan Ave., Chicago 49

FINANCIAL AND INSURANCE

Wander Company, *360 N. Michigan Ave., Chicago* 49

Physician Casualty Co., Omaha, Neb. 5

GENERAL

Abbott Laboratories, North Chicago, Illinois 9

Ames Co., Inc., Elkhart, Ind. 39

The Arlington Chemical Co., Yonkers, N. Y. 34, 58

Armour Laboratories, Chicago 9, Ill. .....

Ayerst, McKenna & Harrison Ltd., New York 16 15

Bilhuber Knoll Corp., Orange, N. J. 54

Bristol Laboratories, Inc., Syracuse 1, N. Y. 25

The Central Pharmacal Co., Seymour, Ind. *26*

Ciba Company, Summit, N. J. 4

Commercial Solvents Corp., Terre Haute, Ind. *30*

Doho Chemical Corp., New York 13, N. Y. .....

Eaton Laboratories, Inc., *Norwich, N. Y.* *32*

Endo Products Inc., *Richmond Hill* 18, N. Y. 59

C. B. Fleet Co., Inc., Lynchburg, Va. 55

Gold Pharmacal Co., New York *62*

Hoffman-LaRoche, Inc., Nutley, N. J. 29

Holland-Rantos Co., Inc., 551 Fifth Ave., New York 33

Homemakers' Products Corp., New York 10, N. Y. 50

Hynson Westcott & Dunning, Charles and Chase St., Baltimore 48

International Vitamin Corp., 22 E. 40th St., New York City .....

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Lanteen Medical Laboratories, Chicago 10 .....

Lederle Laboratories, New York 20 23

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Lily, Eli & Co., Indianapolis, Ind. 35, 36

S. E. Massengill Co., Bristol, Tenn. .....

McKesson & Robbins, Inc., Bridgeport, Conn. .....

Merck & Co., Rahway, N. J. .....

Morris, Philip & Co., 119 Fifth Ave., New York .....

Nepera Chemical, Yonkers, N. Y. .....

Num Specialty Co., Pittsburgh, Pa. 68

Occy-Crystine Laboratory, Salisbury, Conn. 61

Organon, Orange, N. J. 24

Parke, Davis & Co., Detroit, Mich. 27

Plastishield, Inc., Minneapolis .....

Reed & Carnrick, Jersey City 6, N. J. .....

Reynolds & Co., R. J., Winston-Salem, N. C. 22

A. H. Robins Co., Inc., Richmond 20, Va. 19, 20

J. B. Roerig & Co., 536 Lake Shore Drive, Chicago 38

Sandoz Pharmaceuticals, New York 14 56

Schenley Laboratories, Inc., N. Y. 1, N. Y. .....

Schering Corp., Bloomfield, N. J. 31

Schieffelin & Co., New York 3 .....

Schmid, Julius, Inc., 423 W. 55th St., New York City ..

G. D. Searle & Co., *P. O. Box 5100, Chicago* ..... Inside Front Cover

Sharp & Dohme, 11 Canal St., Chicago 18

Smith Dorsey Co., Lincoln, Nebr. 45

Smith, Kline & French, Philadelphia 6, 13, 21, 28, 37, 46, 53, 67

E. R. Squibb & Co. 12

The Tarbonis Co., Cleveland 3, Ohio .....

Upjohn Co., Kalamazoo, Mich. 43

U. S. Vitamin Corp., New York 17 47

Walker Vitamin Products, Inc., New York .....

Wm. R. Warner & Co., 113 W. 18th St., New York 17

Whittaker Laboratories, Inc., New York City..... 5

White Laboratories, Inc. 10, 11, 51, 52

Winthrop Stearns Co., 70 Varick St., New York 16

Wyeth Incorporated *8*

Zemmer Co., Pittsburgh, Pa. 68

SANATORIA AND SANITARIA

Bellevue Place, Batavia, Ill. 65

City View Sanitarium, Nashville 4, Tenn. 65

Costeff Sanatorium, Peoria, Ill. 63

Douglas Park Hospital, Chicago 23 69

Edward Sanatorium, Naperville, Ill. 64

Fairview Sanitarium, Chicago 16 63

Mitchell Farm, Peoria 64

Milwaukee Sanitarium, Wauwatosa, Wis. ..... Back Cover

Norbury Sanatorium, Jacksonville, Ill. 65

North Shore Health Resort, Winnetka 62

Mary Pogue School, Wheaton, Ill. 63

Stokes Sanitarium, Louisville, Ky. 68

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Picker X-Ray, New York 10, N. Y. .....

Rexair, Toledo, Ohio .....

RADIUM

Central X-Ray & Clinical Laboratory, *58 E. Washington, Chicago* 65

Physicians Radium Assn., Chicago 2 60

sers are ap-

..... 24
..... 27
.....
..... 22
..... 19, 20
go 38
..... 56
.....
..... 31
.....
x City ..
.....
Front Cover
..... 18
..... 45
.....
46, 53, 67
..... 12
.....
..... 43
..... 47
.....
rk 17
..... 5
11, 51, 52
..... 16
..... 8
..... 68

..... 65
..... 65
..... 63
..... 69
..... 64
..... 63
..... 64
ck Cover
..... 65
..... 62
..... 63
.... 68

....
....

ton,
.... 65
... 60

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Mr. Frank Rosen, a resident of Chicago, Illinois, obtained his Pharmacy degree at Valparaiso University. He has had considerable experience as a Pharmacist as well as varied business experience in allied fields. Mr. Rosen will headquarter in Chicago and will be of service to the physicians and pharmacists of the Chicago Loop area.

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